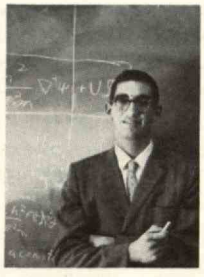
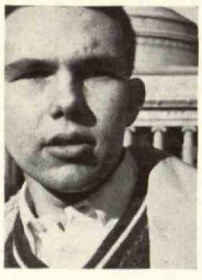
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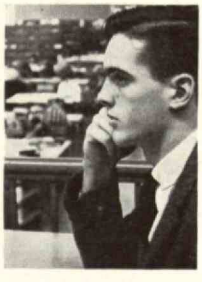
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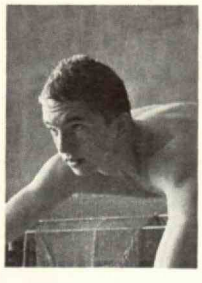
February, 1962











Advanced Placement
at M.I.T.—Page 15

technology
review
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We make something for practically everyone

Leadership is not always an unmixed blessing. Take Cabot's case, for instance.

We produce more different grades of carbon black — the raw material principally used to reinforce tires and a host of other rubber products — than anyone else. We sell more. Not only in the U. S. but on all six continents. In no less than 58 different countries, at last count.

Such a record of leadership is most certainly gratifying. But as we mentioned, its blessings are not altogether unmixed. Because some people still say — "Oh yes, Cabot — the carbon black people" . . . just as if Cabot produced only carbon black, and only for the rubber industry!

This (we'll say it as gently as we can) is a mistaken notion. As the headline says, we make something for practically everyone. We offer a wide range of raw materials for industry (including, quite possibly, yours). Any one of them may help you realize a better product . . . a better profit . . . or both.

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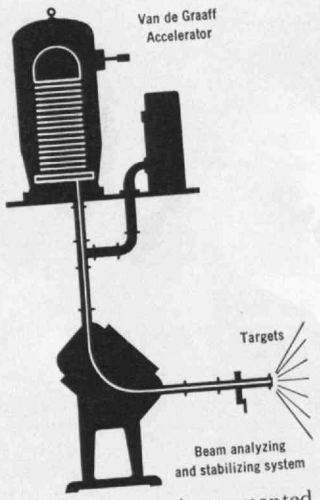
Chemists and metallurgists have been quick to adopt experimental techniques first used for fundamental nuclear physics research. Today, they are exploiting the characteristics of intense ion beams and neutron fluxes for applied research, engineering and analysis. Already, important results have been obtained using nuclear radiations for trace analysis, wear studies, semiconductor modification and similar applications where interactions of positive ions or neutrons create desired, predictable and measurable effects.

Although a number of positive-ion accelerators have been installed specifically for this kind of developmental work, we believe that the use of particle beams for *materials evaluation* is just getting started, and that many programs are dormant because of the cost and skill-requirement of owning and operating an accelerator facility.

Ion Beams and Neutrons for Hire

We think we have an answer to this problem for those who wish to explore activation analysis or research involving accelerated positive ions or neutrons. Here in Burlington, we have a fully-equipped and expertly-staffed *Positive Ion Service Facility*, employing a 2-Mev Van de Graaff accelerator and neutron source as the central research instrument. *Both the facility and the assistance of the staff are now available for independent research and analyses by outside organizations on a rental or contract basis.*

The Van de Graaff is our Model AN-2000. It offers 0.3 to 2.0 Mev hydrogen or deuterium ion beams with currents up to 100 microamperes in continuous or pulsed operation. A 90° mass analyzing magnet and feedback system stabilizes the voltage. A large fraction of the accelerated ion beam is emitted with a homogeneity within 1 part per 1000 for monoenergetic neutron experiments.



The facility is fully instrumented, including a 200-channel pulse height analyzer for scintillation spectrometry and decay-scheme studies, a remotely-operated sample changer, and neutron moderator.

You may want to use the facility to carry out specific analyses . . . or investigate the feasibility of a certain technique . . . or solve a knotty materials-evaluation problem. Other research possibilities are: *particle interactions; neutron-induced reactions; production of short-lived isotopes; instrument calibration; environmental research; radiation damage and shielding parameters; solid state surface studies; radiobiology.*

Users plan and evaluate all work. We provide an operator. If it bothers you to carry out what may be proprietary development programs in somebody else's house, have no fear. If the use of accelerators is encouraged, we are content. You may draw the shades tightly on any techniques used, and, of course, the results are strictly your own business. If, however, you would like to take advantage of some knowledge we have, a staff physicist is on hand to help.

If the requirement is perfectly straightforward, such as routine analysis, ship us the sample, and we'll do the work. We will supply cost estimates for any program contemplated on a project or continuous use basis. For more information, write for our Bulletin N-1.

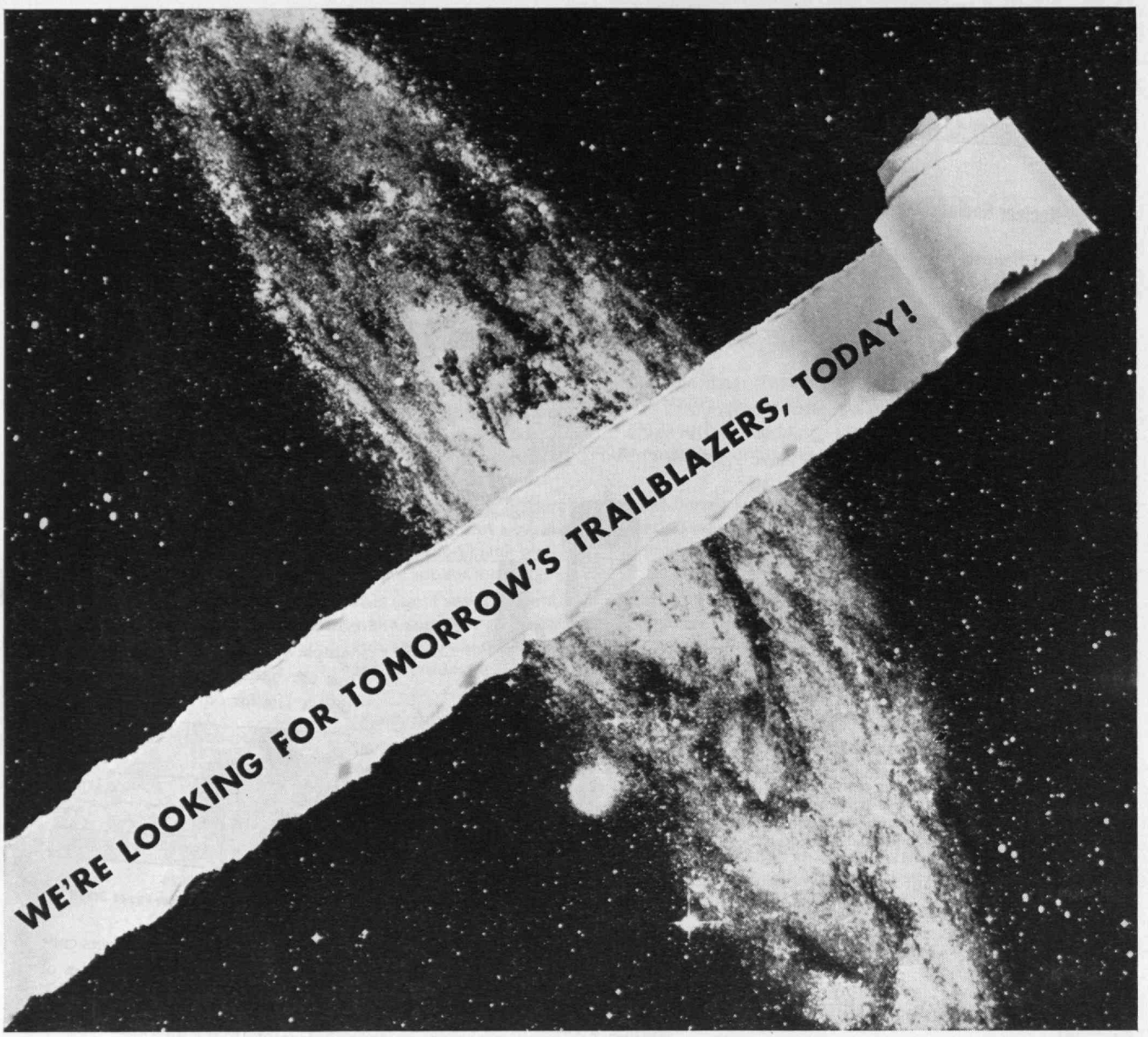
Reaction	Neutron Energy (Mev)	Neutron Yield (n/sec)
D-D	1.5-6*	5×10^9
D-Be	0.6-5†	4×10^{10}
D-T	14-15*	5×10^8

*monergic †polyergic

Neutron Yield From 2-Mev Van de Graaff

Of course, if the rentee gets carried away with the possibilities of this work and wants to buy an accelerator, that's all right. Van de Graaffs are available from 0.4 to 4 Mev, producing up to 400 microamperes of current for monoenergetic neutron production. For really high neutron fluxes, the microwave linear accelerator excels. We can recommend a package of suitable instrumentation and would be glad to give counsel on installation and shielding.

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Digital Computer Development Engineers
Research and Development Engineers
Transistor Circuit Design Engineers
Systems Engineers

Milwaukee
Military Defense Systems, Program and Project Engineers
Radar Design and Development Engineers
Radar Systems Engineers
Radar Test Engineers
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Field Service Engineers
Electromagnetic Engineers
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Quality Control Engineers/Analysts
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Technology Review

Reg. U.S. Pat. Off.

Volume 64, Number 4 *Edited at the Massachusetts Institute of Technology* *February, 1962*

Feedback

Something to Think About

FROM RALPH E. CURTIS, '15:

I have been very pleased at the type of reading matter appearing in The Technology Review during the past year. There is always at least one article that gives us something to think about. The December issue had an article by W. O. Baker titled "Learning Corps in Industry." I have read this article twice.

In my particular case, I got out in 1915 and went into the electric light and power industry. While in school I worked for the electric light company in Springfield in their power plant as an electrician. There were three of us in the gang replacing old Stanley-type button oil switches with new General Electric pressure contact oil switches. The switch panels were made of marble about two inches thick and the wire in back of these panels was all exposed wiring, insulated for 5,000 volts and operating at 2,300 volts. Before taking a jackknife to cut off the tape, we would hold our hand up near the wire and if it was alive it would raise the hair on your hand. I proceeded to make a small silver leaf electroscope on the end of a glass bottle with a wooden handle and was very careful to check these wires. Nobody was electrocuted because we were all very careful and double checked everything. I also remember hunting two days for the cause of an inoperative switch and we found a wire soldered into a lug which did not make electric contact. Because of the nature of the work, we had to work Saturdays and all day Sundays. We took our job very seriously.

In 1922 and 1923 I found myself in the hard-coal regions near Wilkes-Barre, where we had to do a great deal of cut-over work on Sundays. Because the ventilating fans and pumps in the mines could never be shut down, I arranged with the contractor to raise a steel tower 15 feet in the air and

(Concluded on page 42)



INDICATIVE of construction getting under way at M.I.T. is this scene at the site of the Center for the Earth Sciences, which is to be the Institute's first high-rise structure. Needs still to be met to fulfill the SCF program are listed on page 11.

EDITOR: Volta Torrey; BUSINESS MANAGER: R. T. Jope, '28; CIRCULATION MANAGER: D. P. Severance, '38; EDITORIAL ASSOCIATES: J. J. Rowlands, Francis E. Wylie, John I. Mattill; EDITORIAL STAFF: Ruth King, Roberta A. Clark; BUSINESS STAFF: Madeline R. McCormick, Patricia A. Fletcher; PUBLISHER: H. E. Lobdell, '17.

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Contents

The Cover

A few of many M.I.T. students granted Advanced Placement, as explained on page 15, are pictured. From the top they are Robert B. Schneider, '64, of Huntington Station, L.I.; Anthony A. Darrobino, Jr., '65, of Marblehead, Mass.; Harriet J. Fell, '65, of Flushing, N.Y.; Martin A. Snyder, '65, of Villanova, Pa.; and Robert P. Geroch, '64, of Akron, Ohio. Bob Lyon took the photos and Ralph Coburn, '47, designed the page.

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Items that were news at M.I.T. 25, 50, and 75 years ago.

Individuals Noteworthy

Corporation Members

CECIL H. GREEN, '23, has been elected a life member of the M.I.T. Corporation, and William B. Murphy a five-year term member.

Mr. Green is honorary chairman of Geophysical Service Incorporated, of Dallas, and a director of Texas Instruments Incorporated, the Geophysical Service International Corporation, and the Geophysical Service International, S.A. He is also chairman of Geomarine Service, Inc., and Geomarine Service International, S.A. He has been a special term member of the M.I.T. Corporation since 1958, and a gift from Mr. and Mrs. Green provided for the new Earth Sciences Center building.

Mr. Murphy is president of the Campbell Soup Company of Camden, N.J., and a director or trustee of several business and educational organizations. He was graduated from the University of Washington in 1928, and was with the A. C. Nielsen Company, of Chicago, before joining the Campbell Company in 1938. Mr. Murphy received the Medal for Merit for his work with the War Production Board from 1942 to 1944.

Associate Dean Named

JOHN M. WYNNE, '56, who has been director of Executive Development Programs and lecturer in the School of Industrial Management since 1958, has been appointed associate dean of the School. Mr. Wynne is a former Sloan Fellow. He was graduated from the University of Kansas in 1940 and was formerly chief civilian officer of the Sacramento Air Materiel Area in California.

Peter P. Gil, of the *Centre d'Etudes Industrielles* in Geneva, Switzerland, will succeed Mr. Wynne as Director of Executive Development Programs. A graduate of Harvard College and the Harvard Business School, he was with the Aluminum Company of Canada, Ltd., from 1951 to 1956.



A DATA-PROCESSING SYSTEM produced by Lt. Fred B. Cox, Jr., '58 (in rear) and Paul O. Lindfors for the Edwards Air Force Base already is credited with saving $450,000 in addition to giving researchers useful data regarding test flights sooner. "Logic buckets," like the one shown, select and convert flight data into digital form for processing in an IBM 7090 computer.

Professor of Architecture

HORACIO CAMINOS will join the M.I.T. School of Architecture and Planning next fall as Professor of Architecture.

Professor Caminos has earned high distinction both as a teacher and as an architect. He was born in 1914 in Argentina and studied at the University of Buenos Aires. He was a professor of architecture at the University of Tucuman, and the designer of the master plan and several buildings for its campus, part of which has been constructed. In 1951-1952 he taught at the Architectural Association School in London, and at the end of that period was appointed professor of architecture at the School of Design at North Carolina State College, where he has been until the present.

He has been in private practice since 1940 and has won many architectural competitions.

R. S. Williams: 1880-1961

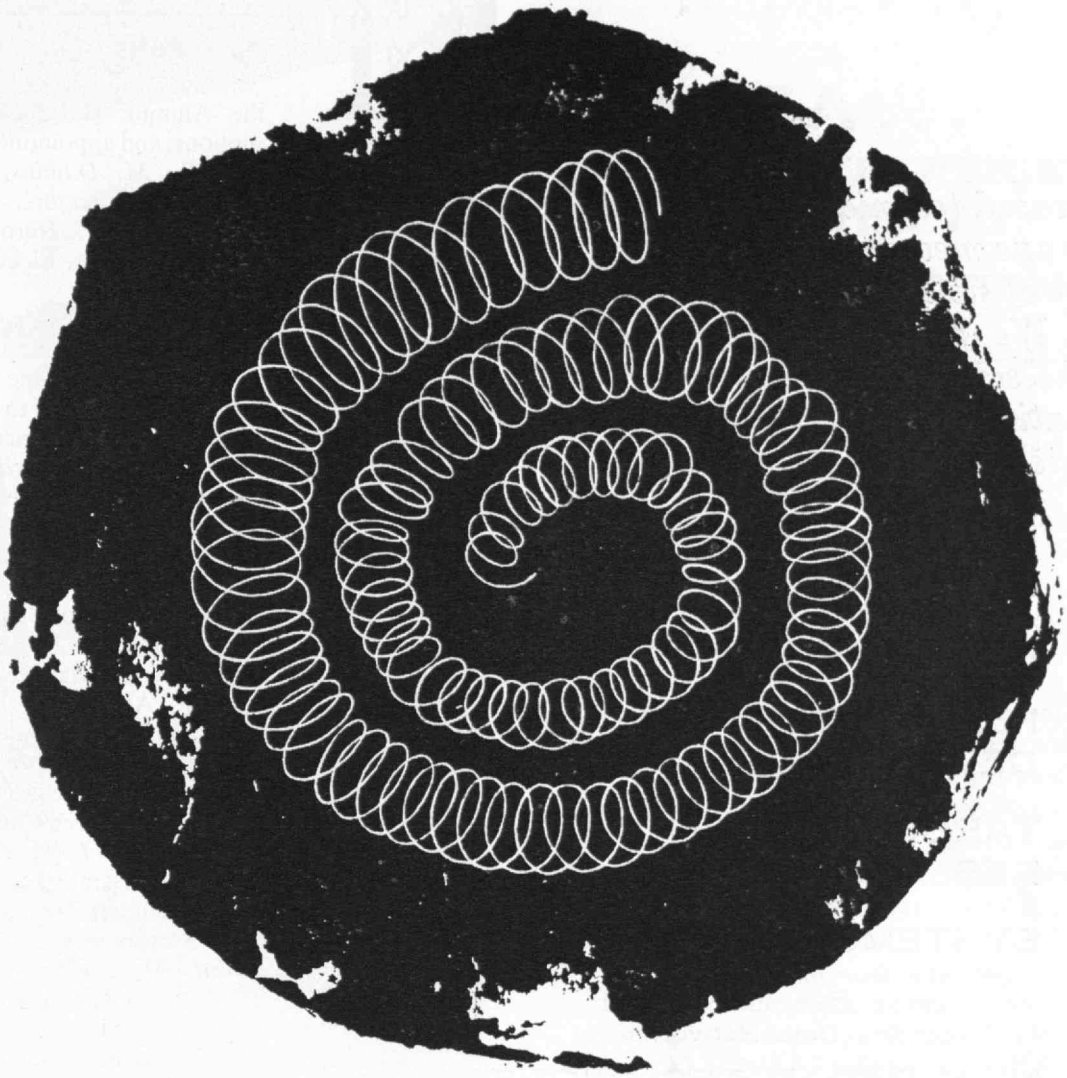
A LEADER in the development of metallurgy as a distinct profession, Professor Emeritus Robert S. Williams, '02, died in Boston last December 11.

Professor Williams served in the Department of Chemistry from 1902 to 1905, received his Ph.D. from the University of Göttingen in 1907, and he returned to the Institute to serve on its Faculty for many years. He was in the Department of Chemistry from 1907 to 1927 and in the Department of Metallurgy for the next two decades. He became head of the Department of Metallurgy in 1937, Deputy Dean of the School of Engineering in 1942, and Dean of Army and Navy Students in 1945. He retired in 1946 but was a lecturer on physical metallurgy until 1951. With Professor Victor O. Homerberg, '21, he wrote *Principles of Metallography*.

Professor Williams was especially interested in alloys and microscopic analysis. He was a member of the National Research Council's committee on uses of beryllium during World War II, the National Defense Research Committee, and the War Metallurgy Committee.

He is survived by his wife, Bertha; his sister, Miss Anne Williams; his son, Robert D., '37; and seven grandchildren.

(Continued on page 6)



Said Svante Arrhenius: *"The change of the logarithm of a chemical reaction rate constant with respect to temperature, is inversely proportional to the square of the absolute temperature."*

The aerospace industry is searching constantly for strong, light-weight, heat-resistant materials. Finely-spun glass fiber, bonded with a plastic binder, is beginning to exhibit superior properties. Until recently the glass fiber has been far more heat-resistant than any binder.

Scientists at Lockheed Missiles & Space Company, however, have developed a compatible binder. This now makes it necessary for the glass-producing industry to evolve a glass to match its superior heat-resistance.

Comparable successes are being achieved in dozens of disciplines in which Lockheed is engaged. As Systems Manager for the DISCOVERER, MIDAS, and other satellites, and the POLARIS FBM, Lockheed probes all areas of aerospace endeavor.

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Individuals Noteworthy

(Continued from page 4)

New Posts

NAMED in the news recently were the Alumni whose elections, promotions, and appointments follow:

Philip M. Dinkins, '18, to the Board of Directors, Worthington Corporation . . . *Harold F. Smiddy, '20,* as a director, Electric Bond and Share Company;

Latimer F. Hickernell, '22, to the Board of Trustees, United Engineering Trustees, Inc. . . . *Boynton J. Fletcher, '24,* to the Board of Directors, the American Standards Association . . . *Richard M. Sawyer, '29,* as President, Firestone Textiles Company, Division of Firestone Tire and Rubber Company;

Rodolfo M. Soria, '39, as a Director, Amphenol-Borg Electronics Corporation . . . *Charles E. Winters, '39,* as Manager, Refractory Metals Advanced Developments Project, Union Carbide Corporation . . . *James H. Moore, '40,* as General Manager, the Metals Division, National Research Corporation;

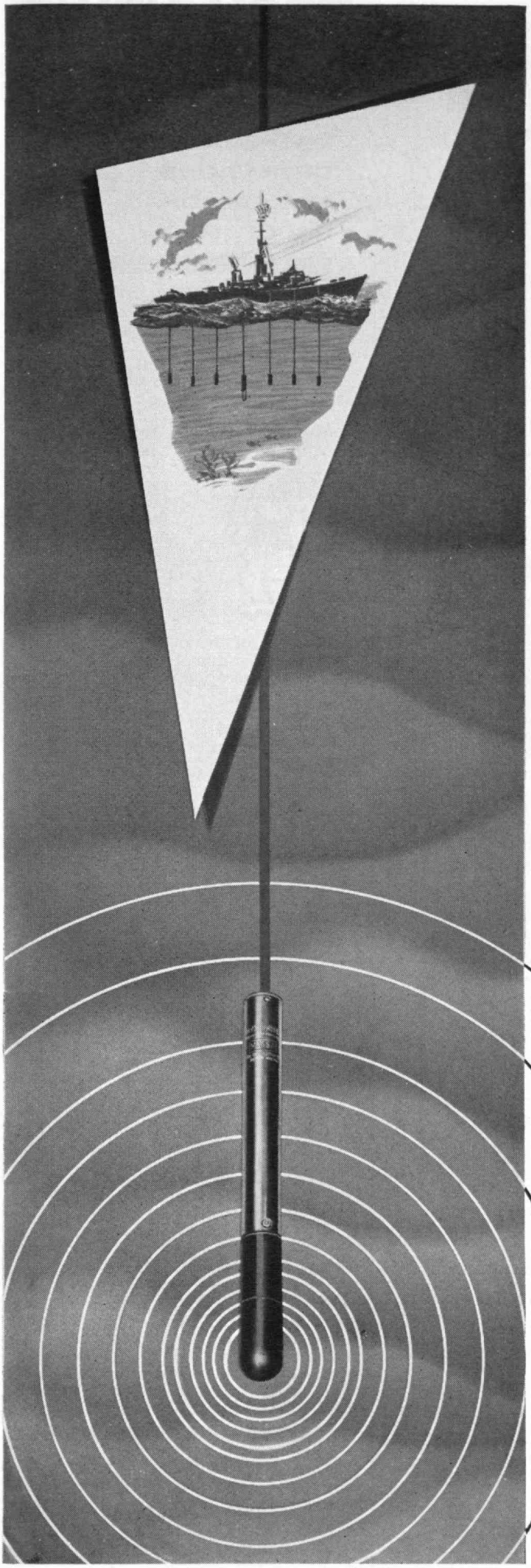
William L. Fader, Jr., '41, as General Manager, Operations, National Tube Division, U.S. Steel Corporation . . . *Nathan R. Owen, '41,* as Chairman, Board of Directors, General Railway Signal Company . . . *David Dettinger, '42,* as Associate Department Head, Communications, the MITRE Corporation;

Eric T. Clarke, '44, as a Director, Technical Operations, Inc., of Burlington, Mass. . . . *Anthony Frothingham, '44,* as Assistant General Manager, International Division, Eastman Kodak Company . . . *Daniel I. Cooper, '46,* as Executive Editor, "International Science and Technology";

Richard J. Steele, '46, as Associate, George Fry and Associates, Los Angeles . . . *Walter S. Bertaux, '48,* as Manager, MF 295 Project, General Electric Company . . . *Robert M. Murray, '48,* as Division Head for Urethane Development, E. I. du Pont de Nemours and Company;

Richard Strauss, '51, as Director, Operations and Development, National Polychemicals, Inc. . . . *George J. Michel, Jr., '53,* as Director, Manufacturing and Purchases, Hancock Telecontrol Corporation.

(Continued on page 8)



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The Massa Division of Cohu Electronics, Inc., is a pioneer in electroacoustics. Its contribution to the basic science of acoustics has established many fundamental concepts upon which this important industry has advanced. Among the many original contributions made by Massa is the design of the first ADP (Ammonium Dihydrogen Phosphate) crystal sonar transducer.

Massa has produced tens of thousands of transducers ranging from low cost depth sounding units to elaborate beam scanning types used in many U. S. Navy sonar systems. The Massa Model M-115B (shown on left) has been in wide use as an underwater reference measurement standard for 15 years without measurable change in its original calibration.

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Individuals Noteworthy

(*Continued from page 6*)

Honors to Alumni

ALUMNI receiving special awards recently reported include:

Henry H. Blau, '20, the 1962 Toledo Glass and Ceramic Award, by the Northwestern Ohio Section of the American Ceramic Society . . . *Manuel S. Vallarta, '21,* El Premio Nacional de Ceincias 1959, by the President of Mexico . . . *William B. Bergen, '37,* Annual Outstanding Management Award, by the Society for Advancement of Management . . . *Henri B. Smets, '57,* the 1962 Browder J. Thompson Prize, by the Board of Directors of the Institute of Radio Engineers.

Ernst Levy's Birthday

TO OBSERVE the 65th birthday of Ernst Levy, the pianist and composer who was Carnegie Visiting Professor in the Department of Humanities from 1954 to 1959, the M.I.T. Baton Society presented a concert of his music in Kresge Auditorium on January 7.

As a Faculty resident in the master's suite of Munroe House on East Campus, Mr. Levy met many students on an informal and personal level.

(*Continued on page 34*)

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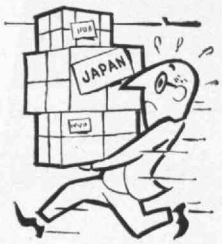
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"Operations research"—the term itself—has attained full status in the recently published Webster's Third International Dictionary. OEG takes particular pleasure in this recognition because of our background as the oldest military operations research organization in the country.



Now when someone asks, "But what do you *do?*" we can refer him to Webster's.

OEG advises the Chief of Naval Operations and certain Fleet and Force commanders regarding operational problems susceptible to quantitative analysis. A recent example is collected under the title, "The Selection of Cargo for Air Transport." Here the objective was to determine criteria for shipping the myriad replacement parts stocked by the Navy's Yokosuka (Japan) Supply Depot. One interesting discovery: Less than 1% of the line items account for well over half the dollar value of annual issues at Yokosuka.



The more sobering content of another recent study can be deduced from its title, "The Effects of Radiation on Populations," a two-part work considering (1) the effects on individuals exposed to radiation today and (2) the genetic consequences for future generations. One of many conclusions: The continued detonation of nuclear weapons in the stratosphere, at a 100-megaton-yearly rate, would result in reducing individual life expectancy by approximately 20 days.

Assisting in the creation of a stable U. S. deterrent posture is one of the major aims of OEG's research program. Permanent career positions are available to scientists and mathematicians with advanced degrees who are interested in problem-solving and want to contribute substantively to the national purpose. These positions are in Washington, D. C. Please send your inquiry to the Director, Dr. Jacinto Steinhardt.

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Chemistry paints a bright future for your car

Forget about burning sun and foul weather. The finish on new cars is as tough as it is beautiful. Chemicals developed through research at Union Carbide have played an important part in achieving smooth, hard mirror-bright coatings that last for years.

Chemicals and plastics have also caused a revolution in other types of paints and finishes in recent years. The result? Water-base latex paints that beautify your home—and dry in minutes—have turned a time-consuming chore into a simple job for any homeowner. Special solvents assure the uniform surface required in the finishing of fine furniture. And many new chemical materials are going into coatings to safeguard industrial equipment from moisture and corrosive fumes . . . and to protect ships from the ravages of salt water.

This is an example of a vital industry that has forged ahead because of the kind of chemical research that goes on at Union Carbide. Looking to the future, the people of Union Carbide are continuing their efforts to bring forth new and better materials for everyday living.

See the "Atomic Energy in Action" Exhibit at the new Union Carbide Building in New York.

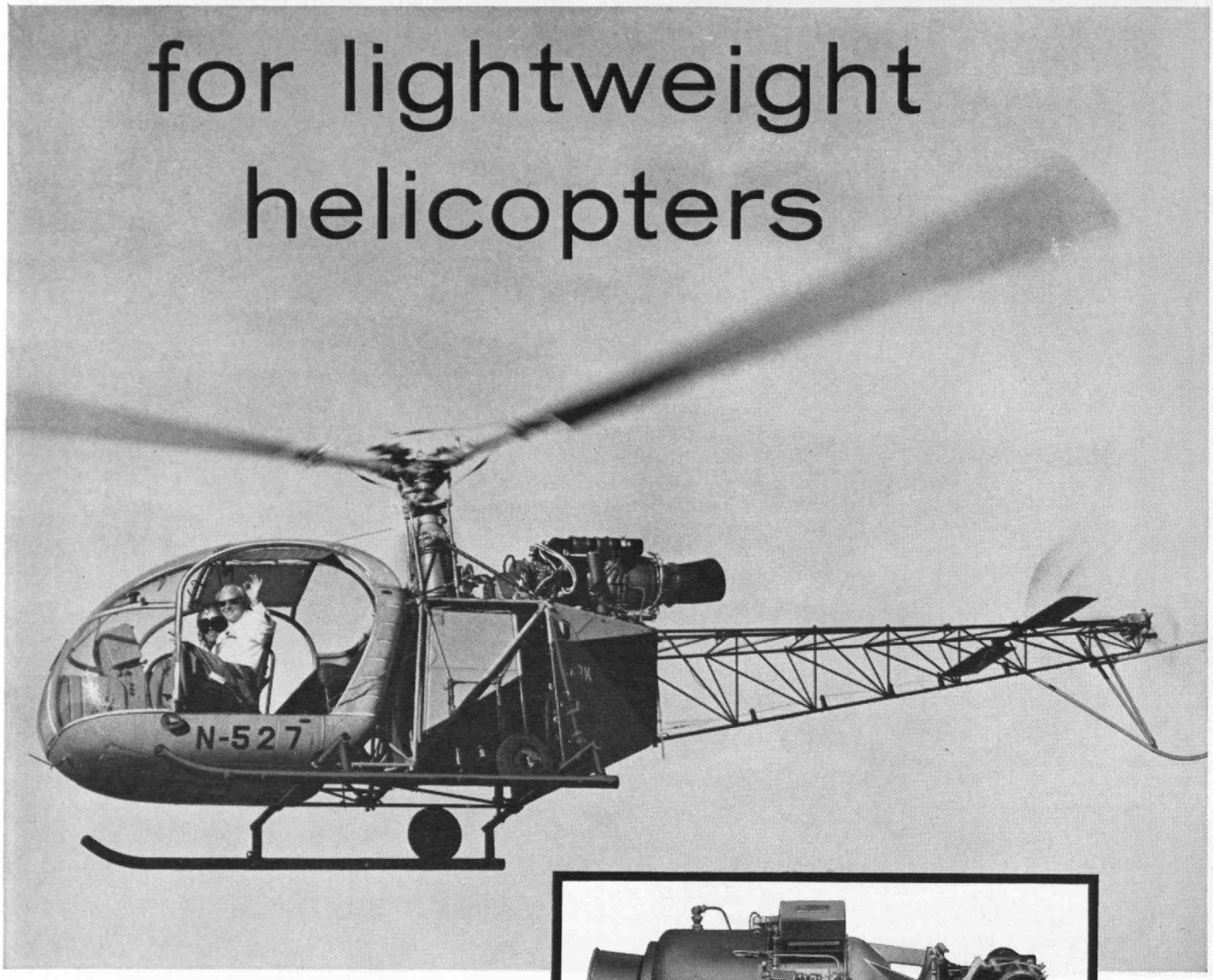
Learn about the work going on now in chemicals, carbons, gases, metals, nuclear energy, and plastics. Write for "The Exciting Universe of Union Carbide" Booklet Y-50, Union Carbide Corporation, 270 Park Avenue, New York 17, N. Y. In Canada, Union Carbide Canada Limited, Toronto.

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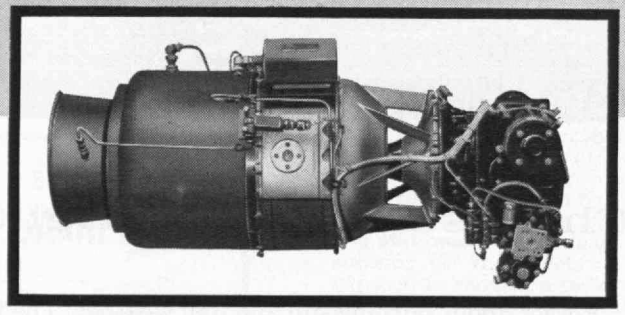
. . . a hand in things to come

Reliable Gas Turbines

for lightweight helicopters



J. J. O'Brien (foreground), vice president and manager, AiResearch Manufacturing Division of Arizona, and George Reno, test pilot, Republic Aviation Corporation, pictured during first flight of Republic's Lark helicopter powered by the AiResearch 331 gas turbine.



Garrett, one of the world's leaders in the development and manufacture of small gas turbines, now offers the new AiResearch 331 gas turbine as the most reliable, lightweight, low-cost engine for high-performance helicopters.

Producing 500 horsepower at an extremely low noise level, the 331 also sets a new standard for lower fuel consumption in this power class.

This single shaft model provides quick response and high maneuverability. AiResearch can also demonstrate the 331 as a split shaft unit. In achieving high compatibility to latest helicopter designs, extensive research has been devoted to controls and system dynamics.

The 331 has evolved from 9000 AiResearch gas turbines now operating in a wide variety of military, commercial airline and industrial applications.

Please direct your inquiries to Gas Turbine Sales, AiResearch Phoenix.

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Trend Of Affairs



The Young Professors' Growth Fund

THE OLD DOMINION FOUNDATION established by Paul Mellon in 1941 has granted $500,000 to the M.I.T. Second Century Fund to endow a "Young Professors' Growth Fund" in the School of Humanities and Social Science. This fund will be used to permit young professors of the humanities to take leaves from normal teaching duties to pursue scholarly interests.

"This grant," said Chairman James R. Killian, Jr., '26, of the M.I.T. Corporation, "will do much to bring to full maturity the program in the humanities which has been under development at the Institute over the past decade or more. The program is of strategic importance because we are laying increasing stress on bridging the gap between the sciences and the humanities. We will accomplish this largely through the effectiveness and the vitality of our teaching.

"The work of our School of Humanities and Social Science is deeply committed to giving a broader background to engineers and scientists. As these men more and more occupy positions of importance in the management of industry and in government, they need not only professional competence but also a broad understanding of man—his history, his creative achievements, his important ideas. The timely and very generous Old Dominion Foundation grant brings to our teaching in humanities a new and needed strength."

Ernest Brooks, Jr., President of the Foundation, also expressed his belief that "a strong program in the humanities at a technical institute of the excellence and wide influence of M.I.T. is of great importance."

By permitting the appointment of more young assistant professors than are needed for departmental teaching, Dean John E. Burchard, '23, of the School of Humanities and Social Science explained, the fund will give every young professor in the Department a chance to have two periods of leave with pay during the first seven years of his career. Thus it will alleviate the problem of men torn between their desire to do a first-class teaching job and their need to establish a scholarly reputation.

"I believe that this fund offers an important example to the country," said Dean Burchard. "I am certain that it will have a powerful effect on our general undergraduate teaching in the humanities, on the morale of the young staff, and indeed on their future careers . . ."

Needs Yet To Be Met

IN A LETTER to all Alumni last month, M.I.T. Corporation Chairman James R. Killian, Jr., '26, and General Chairman John J. Wilson, '29, of the Second Century Fund, reported gratefully and proudly that $50 million had been raised for the fund. This is double the sum obtained in M.I.T.'s Mid-Century campaign 10 years ago, and the largest amount ever raised by an institute of technology, but still $16 million short of the goal.

Projects still requiring substantial support are:

The Graduate Center. No large sums have been designated for it yet, and $6,000,000 is needed.

Student Union. The loss of the Hennessey building has made the need of $4,000,000 for this more urgent.

The Boat House. Only a small amount has been designated for it, and $400,000 is needed.

Centers for Graduate Study and Research. Those to be concerned with the Earth Sciences and Materials Science have been financed, but additional funds are needed for three others to deal with the Communication Sciences, Aeronautics and Astronautics, and the Life Sciences.

Funds for Excellence in Education. Contributions are still inadequate to meet the needs of the School of Science, the School of Humanities and Social Science, the School of Architecture and Planning, and the School of Industrial Management.

Funded Professorships. Four more at $500,000 each are urgently needed.

Of the gifts and grants received to date, $13,315,000 has come from corporations, $17,426,000 from foundations, $14,827,000 from large individual givers, and $4,997,000 from general contributions.

"In obtaining corporation and foundation grants now and in the future," the letter pointed out, "it is especially important to be able to show that a high percentage of the Institute's own Alumni are giving with the generosity that a great effort of this kind demands . . . For gifts of whatever size, the Institute welcomes pledges spread over a period of three years, and under special circumstances, five years."

SEATS ON THE FLOOR are often prized in Kresge Auditorium. Shown above is Conrade C. Jaffe, '63, Lecture Series Committee chairman, introducing T. S. Eliot.

Applied Soil Research

A THOROUGH STUDY of the soil beneath the Institute began this winter in connection with the design of the foundation for the Materials Science and Engineering Building. This five-story structure is to be erected in what is now the main parking lot and will be connected to Building 10 at all levels. Skidmore, Owings, and Merrill of Chicago are handling the architectural and structural planning, and Professor T. William Lambe, '44, Head of the Soil Engineering Division of the Department of Civil Engineering, is soil consultant.

Professor Lambe has formed a Faculty and student group to handle the work as an applied research project. An exemplary, well-documented job may be helpful to the Institute in planning future construction, and the studies now under way will be followed up by a comparison of the predictions with the actual performance.

Three boring rigs from the Raymond Concrete Pile Company were put to work last fall under Thomas J. Holland's supervision. In addition, Gary G. Hayward, '59, of Edgerton, Germeshausen and Grier, has been examining the site with an Edgerton "boomer."

An important parameter controlling soil consolidation is the pore water pressure. So five "piezometers" to measure pore pressure are to be placed in the clay near the center of the Materials Building site. A piezometer consists of a cylindrical porous stone two feet long embedded in a sand pocket in a borehole and connected to a nylon tube rising vertically to the surface. Above and below the sand pocket the borehole is sealed with a mixture of sand and chemical grout. Water from the clay surrounding the sand pocket enters the cylinder and presses water up into the tube. The difference in elevation between the water level in the tube and the free ground water represents the excess pore water pressure. This will be recorded before, during, and after construction of the building.



Professor Edgerton with one of his powerful sonic boomers.

The sequence of fill, organic silt and mud, sand and "Boston Blue Clay" overlaying the bedrock below the Institute has posed difficult problems which have been solved in the past in a variety of ways. Interactions of the new building with old ones, which may settle more, must be considered in addition to the usual problems.

Professor Lambe's group includes U. Luscher, '59, project engineer; Assistant Professor Charles C. Ladd, '55, laboratory work; Walter T. Jackson, Jr., '61, field engineer; and R. B. Colman, F. V. Lawrence, Jr., and T. H. Kim, engineers. Each member has specific responsibilities, but decisions are made by the group as a whole, and several students are sitting in on the meetings being held to thresh out the problems.

The Edgerton Boomer at Sea

FROM building pingers, Professor Harold E. Edgerton, '27, and his colleagues at M.I.T. have gone on to make boomers. Both are devices to bounce sounds off the floor of the sea. Guided by the echoes from a pinger, oceanographers can place cameras and other instruments at precise distances above that floor. With a boomer, they can penetrate the floor with sound and note the depth of the sediment in its valleys.

The boomer is a flat coil between two aluminum plates. When current is sent into the coil, the plates fly apart. Reflections of the sound from this controlled, small explosion can be picked up with apparatus towed 600 feet or so behind the ship as it moves along, and used to record the seismic profile far below the vessel.

Explosives often have been used similarly for marine geological surveys, but many jobs can be done now without them. A boomer is safer, economical to operate, and the pressure pulse from the hole in the water that its plates create is a clean one.

Professor John B. Hersey's group at the Woods Hole Oceanographic Institution had a boomer 12 feet out from the side of the *R. V. Chain* and used it hour after hour, at 10-second intervals, while crossing the Atlantic last fall from Monaco. Professor Edgerton boarded the ship over there—after having Thanksgiving dinner with the Prince and Princess of Monaco and their children—and heard this boomer in action. He and his students, he recalled, calibrated early experimental models by noting the distance from the laboratory of the people who complained about the booms. The plates of the boomer alongside the *R.V. Chain* were 18 inches in diameter, and 10,000 watt-seconds of energy were sent into its coil. Its boom, Professor Edgerton noted, was loud enough to bring a slumbering seaman flying out of his bunk.

The Nils Anderson Scholarship

TO DEMONSTRATE his interest in the foundry industry, Nils Anderson, founder, chairman, and director of the Debevoise-Anderson Co., Inc., of New York recently announced a $10,000 gift to M.I.T. for a Nils Anderson Scholarship in foundry engineering.

Merton C. Flemings, Jr., '51, Associate Professor of Metallurgy, in acknowledging the gift, called it an important step in attracting young men to the foundry industry.

The Herreshoff Collection

THE R. F. Haffenreffer Family Foundation has given the M.I.T. Department of Naval Architecture and Marine Engineering about 10,000 working drawings and plans of the famous Herreshoff Manufacturing Company of Bristol, R.I. These were drawn by or under the supervision of Nathanael Herreshoff, '70, the "Wizard of Bristol" who designed and supervised the construction of more America's Cup defenders than any other naval architect. He also designed and built seven of our earliest torpedo boats, and was the country's most skilled marine engineer of his period as well as its foremost yacht designer. This collection was loaned to the Institute earlier and has been helpful to the Faculty, students, and many yachtsmen.

The Herreshoff Company was founded about the same time as M.I.T. and has had many ties with the Institute. Nathanael Herreshoff's son, A. Sidney DeWolf Herreshoff, '11, continued the work of his father, and a group of prominent yachtsmen which included Rudolf F. Haffenreffer, '95, became interested in the company. Mr. Haffenreffer's will provided that the collection of plans be loaned to M.I.T.

"The name Herreshoff is outstanding in the history of naval architecture and marine engineering," President Julius A. Stratton, '23, said when accepting the gift, "and we are most grateful for the foundation's decision to make the plans and drawings a permanent part of our nautical collection."

Photography at M.I.T.

MOST of the November, 1961, issue of *Industrial Photography* dealt with M.I.T. "As perhaps no other institution's, M.I.T.'s interests and influence reach into American business, industry, government and science," the editors explained. "Tracing the direct and indirect influence of M.I.T. on our society could keep an historian busy a lifetime . . . Life at M.I.T. begins and ends with photographs—first one for the dean's office and the last ones for graduation."

Articles described the Photographic Service's new quarters in the Graphic Arts building, the darkroom and career of Professor Harold E. Edgerton '27, the Physical Science Study Committee's films for high schools, and many of the ways that photography is used in research at the Institute. Contributors included Daniel R. Schurz, '56, E. A. Guditz, '49, Robin Watson, Peter R. Scott, J. J. McCue, Bob Schildkraut, '62, and Daniel G. Webster.

Introduction de la Theorie des Circuits

SIX SOPHOMORES AT M.I.T. took the Department of Electrical Engineering's "6.01, Introductory Circuit Theory" in French starting last fall, although none of them was from a French home. Ford Foundation funds made the experiment possible and Visiting Professor Maurice Boisvert, '53, from Laval University in Quebec, conducted the class.

The idea was to enable students to increase their knowledge of French while studying another subject. Studying circuit theory in a newly learned language is not difficult, since much of the information is presented in diagrams and mathematical expressions. Both the students' grades and their comments indicate that the experiment went well, and such work may be continued.

George Owen's Career

THE MANY ACHIEVEMENTS of the late George Owen, '94, were recalled in the November and December, 1961, issues of *Yachting* magazine. Evers Burtner, '15, Associate Professor of Naval Architecture and Marine Engineering, Emeritus, was the author of this two-part article and it included many details of Owen's work.

For more than half a century, Professor Burtner emphasized, Owen designed boats with "individuality and quality that made them outstanding" and raced them in tight competition. His mentors included both Professor Cecil H. Peabody, '77, who developed the M.I.T. course in Naval Architecture and Marine Engineering,



"The Yankee," an example of George Owen's designs, was 30-square-meter class champion at Marblehead in 1929.

and Nat Herreshoff, '70, who was responsible for many advances in the design and construction of yachts. Owen's "practical experience, agreeable personality, and ability to expound and sketch, made his courses in ship and yacht design very interesting," Professor Burtner wrote, and "his forthright approach, his knowledge of yachting and athletics, made him popular outside the classroom." He was among those responsible for the success of the dinghy sailing program, he helped with the Francis Russell Hart Nautical Museum, and for many years he was on the M.I.T. Alumni Council.

In Widely Read Periodicals

THE *Saturday Evening Post's* Adventures of the Mind series included, last December 2, "Must Our Cities Be So Ugly?" by Dean John E. Burchard, '23, of the M.I.T. School of Humanities and Social Science. . . . *Science* Magazine's editorial, last November 17, was "The Search and the End Product" by Professor Walter A. Rosenblith of M.I.T.; and *Science's* cover on November 24, featured a photograph of the white portion of a human eye by Professor Harold E. Edgerton, '27.

Alumni Council Hears Dr. Killian

THE United States now finds itself exporting educational ideas, Corporation Chairman James R. Killian, Jr., '26, told the M.I.T. Alumni Council at its November meeting. Steps have been taken in England, France, Germany, and Denmark, he reported, to strengthen education in engineering and science, and the North Atlantic Treaty Organization nations now are considering the feasibility of an International Institute of Science and Technology.

In this institute, as envisioned by its planners, research will be combined with education, it will have



close ties with industry, and there will be interdisciplinary centers such as have been developed here.

Dr. Killian also discussed this country's technological needs and emphasized the shortage of management personnel able to supervise research effectively. Money contributed to the Second Century Fund, he said, is being put to work swiftly, both to strengthen the M.I.T. Faculty and improve physical facilities.

Chairman John J. Wilson, '29, reported on the Second Century Fund's status, and George W. Knight, '24, reviewed that of the Alumni Fund. President D. Reid Weedon, Jr., '41, of the Alumni Association, presided.

Gyroscopes for Space

ENGINEERS will be asked to meet new criteria for space navigation gyroscopes in the next decade, Drs. C. Stark Draper, '26, William G. Denhard, '42, and Milton B. Trageser, '51, of the M.I.T. Instrumentation Laboratory, pointed out at the Institute of Navigation's 1961 meeting in Williamsburg, Va.

Gyroscopes have been used as navigation aids for only about half a century and those now found in aircraft, submarines, missiles, and space vehicles were developed to meet different requirements than will soon be imminent. Although gyroscope designers have been constantly urged to "make them smaller," even more emphasis has been placed thus far on the performance and the reliability of the instruments. Relatively little importance has been attached to power requirements and methods of handling dissipated heat in the devices built for use in terrestrial environments. These criteria will be more important, the Instrumentation Laboratory men predict, in the navigational and control equipment of future orbital, lunar, and interplanetary vehicles.

By developing low-power gyroscopic components and inertial measurement units, they believe substantial gains can be achieved. "It is a good speculation," they say, "that the lower temperature operation accompanying low-power operation will improve reliability, operating life, stability of the components' calibration, and other factors."

For Further Study of Blood

RECENT GRANTS of $158,000 from the National Institutes of Health will enable Edward W. Merrill, '47, Associate Professor of Chemical Engineering, and Dr. Roe E. Wells of Harvard to continue their studies of blood's fundamental properties with an ultra-sensitive viscometer developed in M.I.T.'s Instrumentation Laboratory. (See Technology Review, Nov. 1961, p. 29.)



DEMOLITION of the burned-out "Tech Block" began in December. It housed at various times a candy factory, roller skating rink, billiard hall, bowling alley, marathon dance pavilion, TV station WGBH, and shops and small businesses. Its loss has increased the need for a Student Center, and its removal is greatly changing the Institute's appearance.

(The Trend of Affairs is continued on page 38)

Advanced Placement at M.I.T.

How do students obtain it? How do they use it? How successful are they? Here are the answers

BY M. BRYCE LEGGETT, '40
Associate Director of Admissions

ABOUT a quarter of the freshmen who entered M.I.T. in September, 1961, already had received some credit toward their bachelor's degrees. They had not only studied the usual secondary school subjects but also had done work which was accepted as equivalent to what students do here, and were beneficiaries of exciting new opportunities for academically able boys and girls.

A "subject" at M.I.T. is one half year's work in one area of knowledge, and 224 members of the Class of 1965 received credit for a total of 507 subjects. Fifty-one of these freshmen received credit for two terms of chemistry; 83 credit for one term of calculus and 100 for two terms; 23 received credit for one term of humanities (usually of the elective variety) and 22 for two terms. Others received some credit in languages or in physics. Many students received credit in more than one subject area.

A few qualified for credit beyond the first year in one subject or another. Three students, for example, received credit for two full years of calculus and differential equations and two of these received credit for mathematics even beyond this. One student had cleared both the first (general) and second (organic) years of chemistry. These young people, it should be remembered, were not college transfers or graduates of European-style schools, but were students who came directly from American secondary schools.

How do young men and women qualify for this credit? How do they use it in organizing their undergraduate programs? How well do they do in advanced subjects?

The History of the Idea

For many years, a few secondary schools in the United States, public and private, have offered work to their best seniors that demands the level of performance expected of college freshmen, or something close to it. The danger of the redundant (and dull) first college year for these students was recognized long ago but was not systematically studied until after World War II. Under the sponsorship of the Fund for the Advancement of Education, a frontal attack on the problem was made in 1951, and two general lines of experimental evaluation were tried.

¶ One was the *Early Admission* plan. The able and advanced student was admitted to college at the end of the 11th grade. Several colleges have accepted small numbers of carefully selected students under this plan with eminent success. M.I.T. does this on occasion, if the student appears to be fully the equal of his probable classmates in both personal and academic qualities, but there is no formal Early Admission program here.

¶ The other approach was called Advanced Standing and is generally referred to now as *Advanced Placement*. A dozen colleges, including M.I.T., organized the "School and College Study of Admission with Advanced Standing" to examine the possibility of granting credit in college for work done in high school. The idea differed from Early Admission in two important ways: First, the student whose advanced work was in only one or two areas could gain recognition for it. Second, the sometimes difficult personal factors inherent in an early move from high school (and home) to college were avoided.

It was clear that if a student were to take an advanced subject in college which drew heavily upon the one for which he received credit, he would need to be adequately grounded in the material of the earlier terms. The committee organized groups of teachers and professors to propose the subject content for a generally acceptable first-college-year program and to draw up and grade standard examinations. Pilot studies seemed to justify confidence that some students could do college level work in high school, and the committee recommended adoption of its proposals and general procedures.

In 1953, the M.I.T. Faculty became the first college faculty to accept the recommendations formally and to empower its Committee on Admissions to arrange with the appropriate departments for the granting of degree credit for work done before a student entered college. Since 1956, the national Advanced Placement Program has been under the sponsorship of the College Entrance Examination Board.

The Procedure

How does it work? The joint school-college committees for each subject area (English, Mathematics, Biology, Physics, Chemistry, French, German, Spanish, Latin, American History, and European History) continue to meet to consider the content of the courses and to prepare and grade nationally administered examinations. Each school that wishes to offer its better students advanced work selects its teachers, and they, in turn, decide how and what they will teach.

The students take examinations in May each year. The examinations are graded by a large group of "readers" who use the highly developed techniques of group reading in order to give consistent grades to students who have been in different schools with different teachers and textbooks. Each student's grade, along with his exami-

nation paper and a report from his teachers, is sent to the college he will enter.

Colleges have various ways of treating the material. Some ignore the whole program, some offer placement but no credit toward the degree, and others offer credit. At M.I.T., where many subjects fall in a sequence and degree requirements are specified in terms of subjects, advanced placement and credit become synonymous.

Some colleges review the school report and the examination before deciding upon action. A few which have had extensive experience with the program (M.I.T. among them) proceed in almost automatic fashion, granting credit or placement according to a published plan on the basis of the student's examination score.

The Growth of the Plan

How extensive is this program in the schools? Last May 13,000 students from 1,200 schools took 17,500 examinations. By any standard, the spread of the program has been rapid. Some schools, but not many, offered advanced work in 1950. This is not a post-Sputnik phenomenon, although that event probably helped to convince some schools that the additional effort and expense of the program could be justified.

A parallel plan is developing in communities that have a college. Students who are ready for college work in a subject during their junior or senior year in secondary school may now actually take it at the college. In states with large numbers of community colleges, this is a growing pattern. Such students earn degree credit at entrance at M.I.T. by submitting a transcript from the college. They are not considered college transfer students, however, because they have not been full-time college students.

M.I.T., with its traditional Advanced Standing Examinations (take the final without ever having been registered in the subject), also offers the incoming student a third way in which to establish his eligibility for credit. This can be helpful to a student who has studied on his own or with a tutor, or one whose secondary school program left a gap in his knowledge which he has closed during the summer. A growing number of summer science institutes and summer study programs for advanced students have attracted many young people, who arrive at M.I.T. fully prepared to try our Advanced Standing Examinations.

What the Students Do

How do M.I.T. students use their credit? Usually to move ahead. On the average, the amount of credit is only about 20 per cent of a full program for the first year, so massive acceleration is not made easy. The student receiving credit usually takes one or two sophomore subjects during his first year, then keeps his lead in order to take subjects when he is a junior or senior that can count toward an advanced degree. Less frequently, a student will take something just for fun; the favorites here are in the humanities. This year several have refused a freshman elective credit offered to them in order to take one of the new Undergraduate Seminars. For real acceleration, the chief mode at M.I.T. is still overloading. About 10 per cent of the new freshmen are overloaded now; and if experience of recent years bears up, they will keep the overload and do well in their programs.

How well do these students with credit at entrance do in their advanced subjects? (The jargon is "sequent subjects.") Very well indeed. Extensive experience in mathematics yields a rule of thumb that, on the average, a freshman taking a sophomore subject will do half a grade better than the sophomores in the same class. The freshman allowed to take a junior subject will do a whole grade better than the juniors.

But does he do this at the expense of his other subjects? The answer is that he does not. He does, in fact, a bit better in his whole program than the Admissions Office predicted; his average for the term or for the year is usually somewhat higher than expected. (For the statistically minded, these statements allow for the correction in the prediction made on the basis of the results for the class as a whole.)

Because of these results, M.I.T. is an enthusiastic supporter of Advanced Placement. Through it, able students are being challenged to work at an effective pace. The program gives the undergraduate schools a better opportunity to meet the high entrance demands of graduate schools, and lessens problems formerly resolvable only by increasing the length of the undergraduate program or by compressing even more material into the standard calendar. The program also has opened a new channel for communication and co-operation between the faculties of high schools and colleges. This was expected. In many of the schools which have instituted the program, a general raising of student morale and teaching quality even in the regular subjects has been seen. This has been a pleasant surprise.

Possible Perils

Are there points for caution in all this? Yes, a few:

¶ As in any such special program, one must beware of counting noses to get a presumed measure of excellence. Which school's students earned the most credit? Which college got the largest number of these students? Such questions can trap those who are not wary about the use of statistics, and harm the whole program.

¶ Teachers in the high schools must be helped to resist pressure to teach simply for the examinations. There should be a more valid reason for teaching and for studying than merely to get advanced placement.

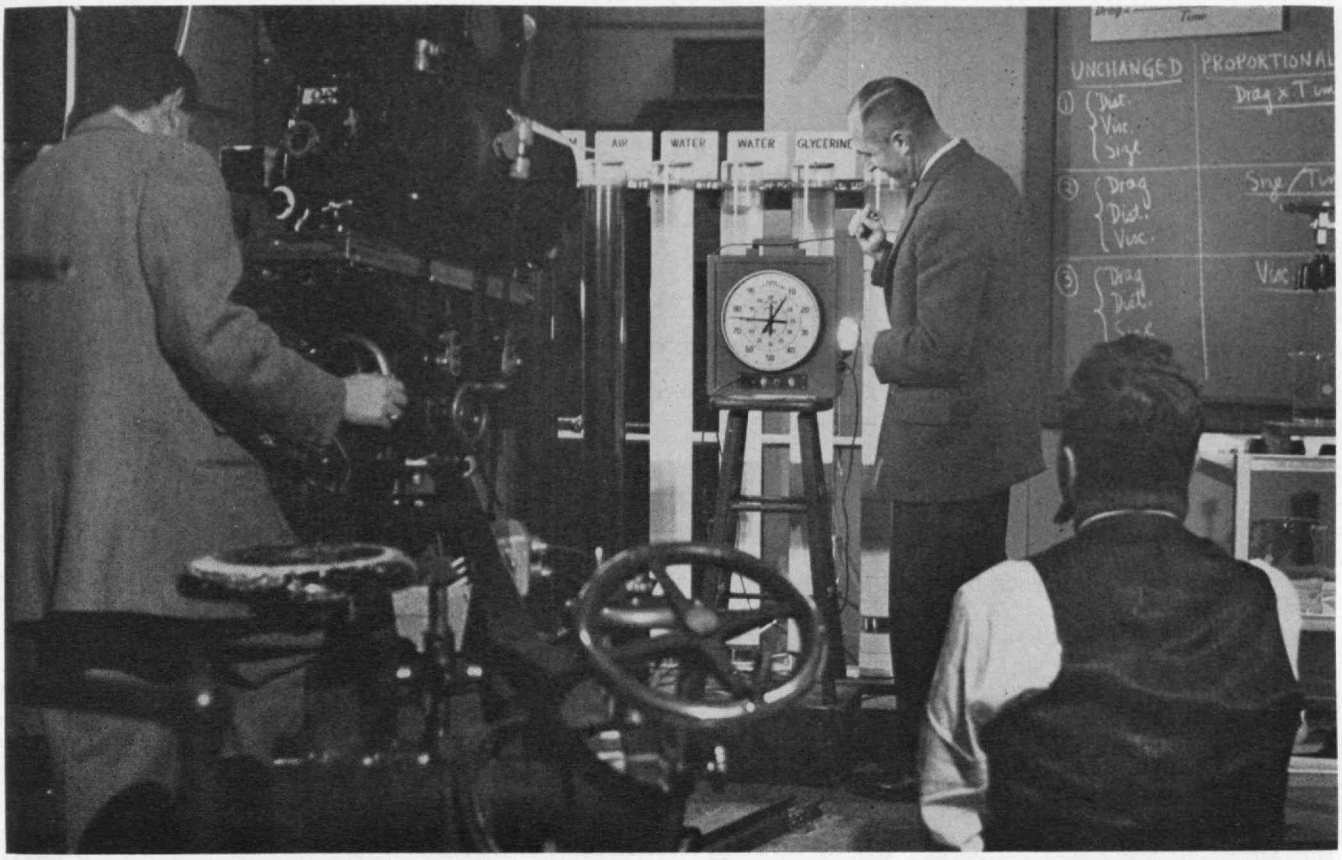
¶ It is possible that, having studied in such a program, a student may appear stronger than he is when his academic success in college is being predicted. This has not been so at M.I.T.

¶ Possibly, too, a student who has been in such a program may look better than another youngster to the Admissions Committee. Since all schools do not offer this opportunity, such a "bias" may be unfair.

¶ It is possible also that some students will select their colleges chiefly on the basis of how much credit is offered; if this becomes a dominant factor, we shall have failed to make clear what education is all about.

These are dangers to be watched, but they need not be fatal to the concept.

From small beginnings—four students had credit at entrance at M.I.T. in September, 1954—this program has grown very rapidly. As it has grown, it has gained wider and wider acceptance throughout the nation. It is difficult to see how it can fail to continue to grow and to benefit secondary and higher education and, most important, the young people who participate in it.



Films to Help Teach Fluid Mechanics

MOTION PICTURES of experimental demonstrations of fluid mechanics for use in engineering schools throughout the country will be produced by the National Committee for Fluid Mechanics Films, of which M.I.T. Professor Ascher H. Shapiro, '38, is chairman. National Science Foundation support for the first year's work on this million-dollar, three-year program has been obtained. Educational Services, Inc., will be the contracting agency, and production of about 25 films is planned.

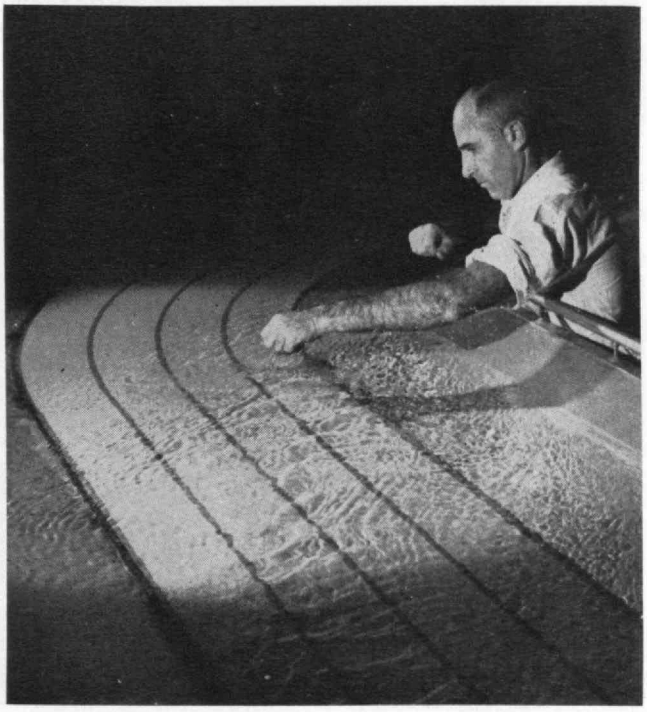
Two films, *The Fluid Dynamics of Drag* and *Vorticity,* already have been made and favorably received.

Films, the committee believes, can be especially helpful in teaching fluid mechanics. There is no natural intuitive basis for the flow models required for creative work in the field, and describing them is a challenge to teachers. Equipment that cannot otherwise be shown in a lecture hall and the best available talent can be presented on film. "Well-made films in the engineering sciences can influence engineering education throughout the country at every level," the committee is convinced.

Members of the national committee include Husan Yeh, '44, Director of the Towne School of Civil and Mechanical Engineering at the University of Pennsylvania, and representatives of Caltech, Harvard, Johns Hopkins, the University of Texas, and Chicago, Columbia, and Stanford Universities.

(*Shape and Flow,* a new 95-cent paperback book by Professor Shapiro, will be reviewed by Professor Shatswell Ober, '16, in Technology Review next month.)

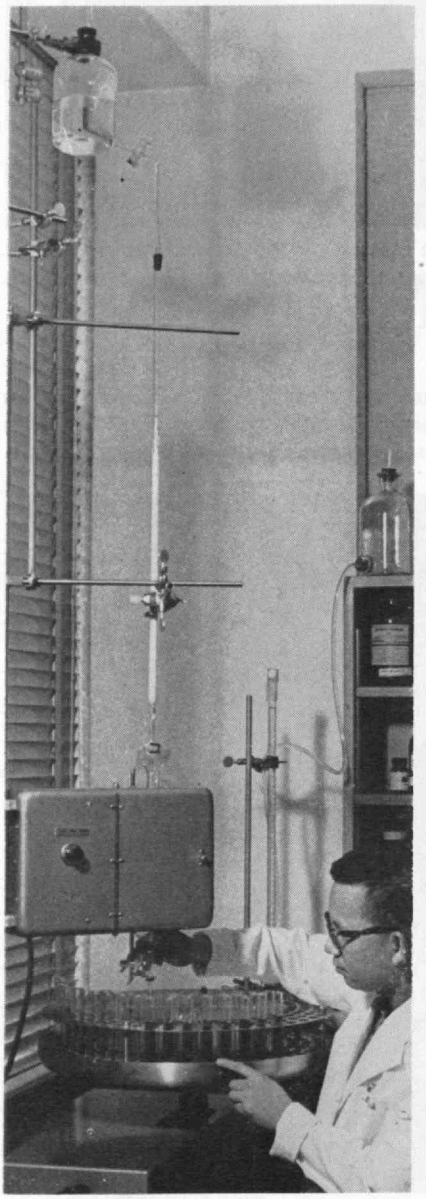
In "The Fluid Dynamics of Drag," Professor Shapiro (shown working with a camera crew above) measured the drag on spheres of different size and weight in water and glycerine.



In "Vorticity," he demonstrated the secondary flow produced by a bend in a stream of flowing water. The scene above was filmed in the M.I.T. Hydrodynamics Laboratory.

Food Is Studied Many Ways in Institute Laboratories

Interdisciplinary research is emphasized and both scientific and engineering techniques are applied to human nutrition problems



Ion exchange techniques help Philip M. Leung, a graduate student, study materials responsible for flavor.

FOOD has become a focal point of developments in many different academic disciplines, and is studied now in a great variety of ways in the M.I.T. Department of Nutrition, Food Science and Technology.

Nutrition is one of the broadest of the life sciences. It involves not only the study of the form, proportions, and interactions of the nutrients required by living organisms, but also genetic, environmental, and emotional influences.

Food science is concerned with both the composition of foods and the various methods of producing, processing, and storing them.

Food technology brings both scientific and engineering principles to bear on the practical problems of feeding the world's people.

The Department's laboratories include animals, instruments employed in the study of physics, chemistry, and biology, and processing equipment with which the effects of radiation, heat, dehydration, baking, and refrigeration can be studied.

Under a co-operative program with the Institute of Nutrition of Central America and Panama, some students now may do graduate research at the Institute in Guatemala, and thus have special opportunities to study serious nutritional problems characteristic of technically underdeveloped areas.

The Department's staff includes specialists in biology, biochemistry, animal nutrition, medicine, public health, food analysis, food processing, food and flavor chemistry, industrial and food microbiology, food technology, food engineering, and food toxicology.



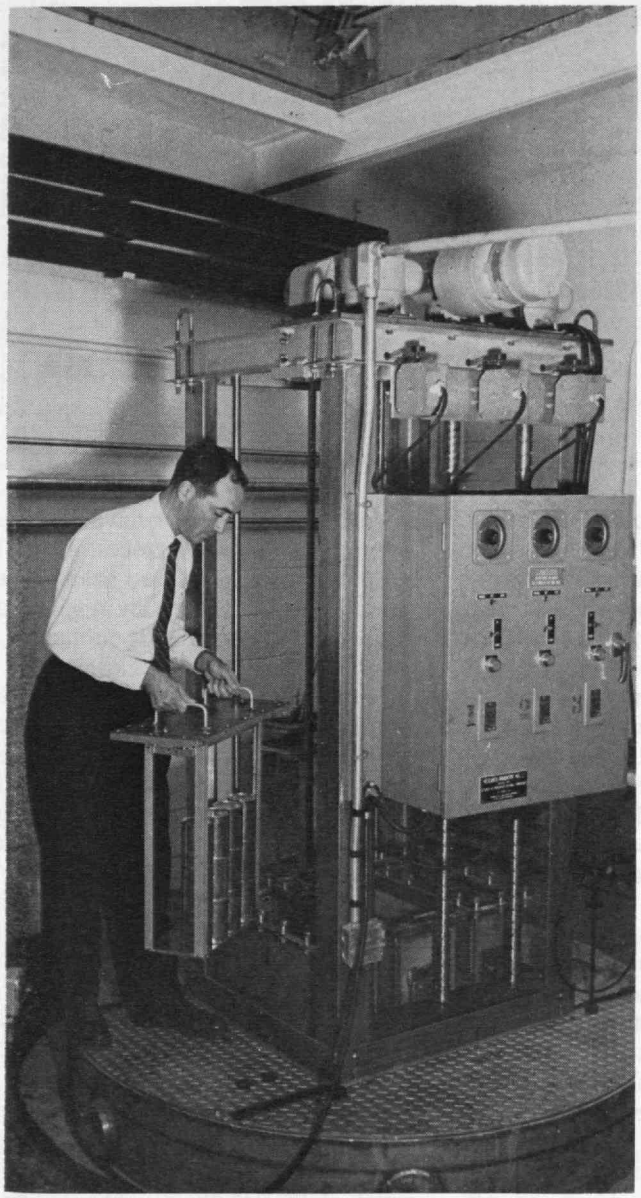
Food is studied with instruments and ideas from both scientific and engineering laboratories. Assistant Professor Stanley E. Charm, '52, is pictured above, supervising William McComis' investigation of the flow of blood.



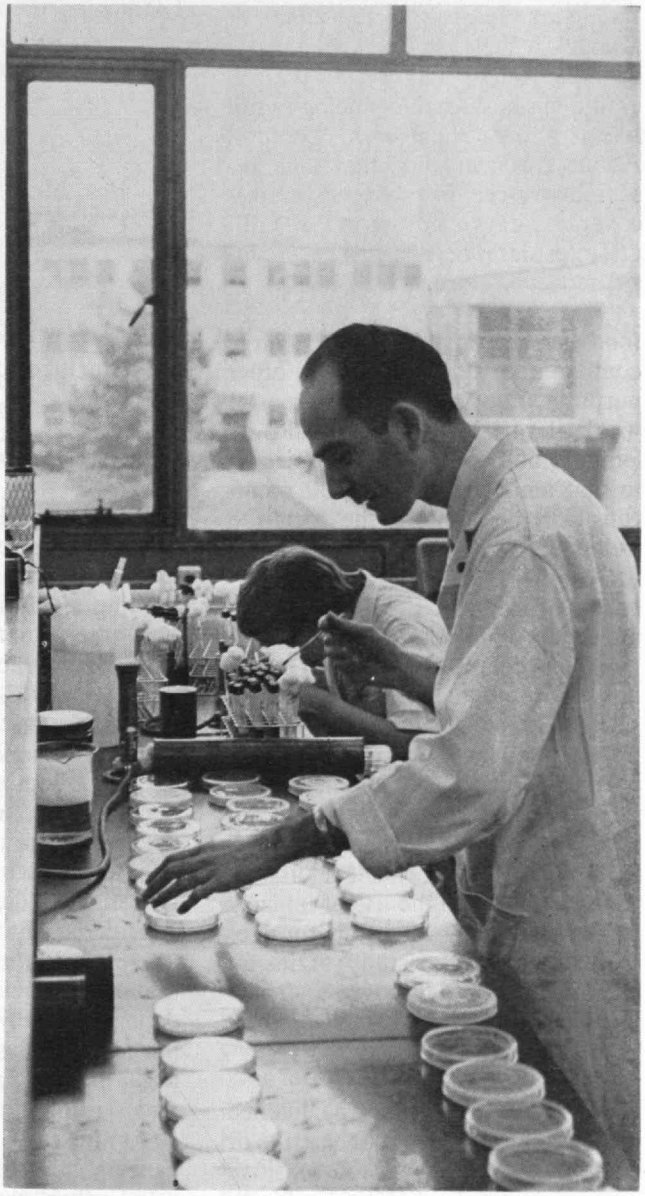
The Department's lecturers include Charles N. Frey, former research director for Standard Brands. Seated beside him is Miss Emily L. Wick, '51, Asst. Professor of Food Science.



Head of the Department now is Professor Nevin S. Scrimshaw, who came to M.I.T. after extensive experience in Latin America. His assistant is Miss Ann Peterson.



The Department's facilities include a 32,000-curie cobalt source with which radiation's effects are studied. Putting samples in place is Joseph J. Licciardello, '60.



After food has been irradiated with the Cobalt 60 source, bacterial counts are made by Edmund B. Masurovsky and others in the Department's Dorrance Building laboratories.

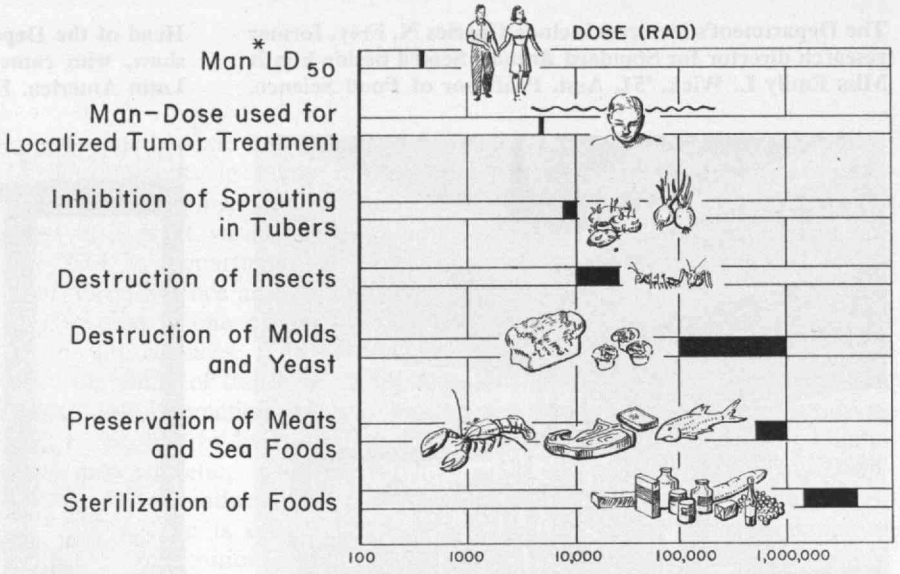
Radiation to Preserve Food?

Its use in commercial processes is likely to some extent soon, as researchers learn more about both its direct and indirect effects

BY SAMUEL A. GOLDBLITH, '40

Prof. of Food Science and Technology

APPROXIMATE DOSAGES OF IONIZING RADIATIONS REQUIRED FOR SPECIFIC EFFECTS



*LD 50 whole body radiation dose necessary to destroy 50% of people exposed.

THE harvesting, manufacturing, and preserving of food is a race between men's constructive efforts and nature's destructive efforts. Adam had to eat the apple that Eve plucked for him quite soon because he had no refrigeration. There was little real research such as that of Samuel C. Prescott, '94, and William Lyman Underwood, '98, on the scientific basis of food technology until late in the Nineteenth Century. About the same time that such research was beginning, Roentgen discovered x-rays, and the use of radiation to preserve food has been considered ever since.

The energy required to sterilize food by radiation, however, is large compared to that needed for other purposes. Four hundred roentgens of whole body irradiation would be lethal to half of the people subjected to that amount. Up to 5,000 roentgens can be used in the localized treatment of tumors. But to sterilize food more than 500,000 roentgens are required, and the x-ray equipment and other sources of radiation available before World War II did not permit extensive experimentation.

Much greater sources are available now, both from high-energy particle accelerators and from the unstable radioactive isotopes produced as by-products of nuclear fission. These have led to the use of ionizing radiation in many chemical processes and facilitated the study of its effects on the molds, yeasts, and bacteria responsible for food spoilage.

Direct and Indirect Effects

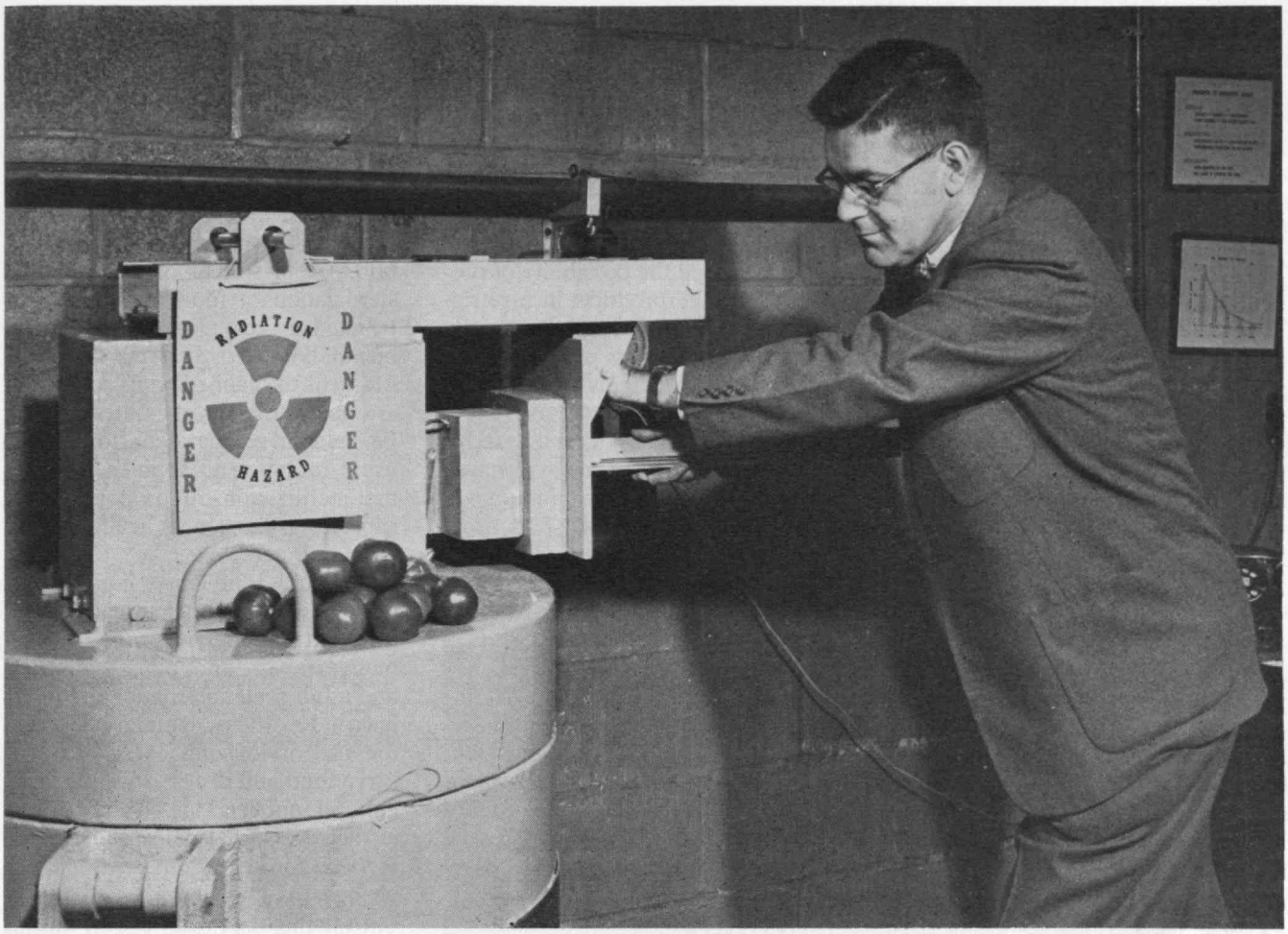
Ionizing radiations may be likened to subatomic bullets. If they strike or come close enough to the sensitive centers of micro-organisms in foods, they can inactivate or destroy such organisms. Doing this can prevent spoilage and thus preserve materials. Such destruction can be achieved with either the x-rays that are produced in accelerators by bombarding metal targets with electrons, or by the gamma rays and beta particles that radioactive isotopes emit during their disintegration.

As the name implies, ionizing radiations cause ionization in the matter being bombarded, and thus produce indirect as well as direct effects. In food, the indirect effects in addition to the direct destruction of bacteria, molds, and yeasts must be considered.

How many micro-organisms a radiation dosage will destroy directly depends largely on the number of particles or rays with which the material is bombarded and the number and size of the targets in it.

At the same time that micro-organisms are being inactivated in this way, other molecules will be affected. These may include both vitamins and amino acids that have nutritional value and those that are responsible for the food's flavor, odor, color and, in some instances, its texture. Vitamins and amino acids may be affected indirectly by the free radicals and activated molecules which the ionizing radiation produces in water. These free radicals and activated molecules react with the available solutes, producing oxidation, reduction, polymerization, bond cleavage, and other reactions which are determined in part by the nature of the solutes, temperature, atmosphere, etc. These side reactions are one of the most important problems facing investigators of the use of radiation to preserve food.

The most involved, time-consuming, and expensive studies undertaken thus far relate to the nutritional value of the food and the danger of toxicity after it has been irradiated. Federal laws require that proof of the safety of a process be established before it is permitted to be used in food production, and these laws specifically mention radi-



SAMUEL A. GOLDBLITH, '40, returned to M.I.T. for his doctorate after surviving the Bataan Death March and 41 months as a prisoner of war, and joined the Institute staff as a research associate in 1949. He has long been concerned with radiation's use to preserve food. He returned to the Orient last fall to visit M.I.T. clubs and serve as one of 11 delegates from the Atomic Energy Commission to Japan's Fourth Conference on Radioisotopes in Kyoto.

ation and carcinogenicity. There are four important aspects of the wholesomeness problem, consequently, that have been considered. These are:

1) *Effects on nutrients.* A vast amount of work has been done on this aspect of the problem and, while some loss of nutrients has been found, this kind of destruction is no greater than it is in conventional methods of preserving food.

2) *Induction of toxicity.* A large-scale program relating to this, initiated by the Army Surgeon General's Office, is nearing completion and to date no evidence of toxic factors has been found in foods exposed to large doses of ionizing radiation.

3) *Carcinogenicity.* Extensive studies carried on under a program supported by the Department of the Army have shown no indication of carcinogenic substances being formed.

4) *Induced radioactivity.* Factors involved in this aspect of the problem include the energy level of the radiation used, the total dose, cross section, isotopic abundance, and the half lives of the radionuclides that may be produced. Extensive studies under the Quartermaster Corps' sponsorship have shown that no measurable radioactivity need be induced in food when pile-produced Cobalt 60 is employed as the source of radiation.

Some radioactivity is induced whenever food is irradiated, and some is present naturally because of Potassium 40 and other isotopes. Hence, even though the law calls for "zero" radioactivity, this is not attainable. Even a 24-Mev beam of high-energy electrons, however, will add only about 1 per cent to radioactivity that is present naturally.

Reducing the Side Reactions

A highly attractive method of irradiating food would be one which would maximize the direct effects on micro-organisms responsible for spoilage, yet produce minimal indirect effects which cause undesirable side reactions, and not impair the wholesomeness of the food. Several approaches to such a method are being studied. They include:

¶ *Irradiation in a frozen state.* Low temperatures immobilize free radicals and thus could reduce indirect effects.

¶ *Irradiation in a vacuum or inert atmosphere.* The number of oxidative free radicals could be reduced this way.

¶ *Addition of free-radical scavengers.* Ascorbic acid, its derivatives and analogues, and other materials have a greater affinity for free radicals than do the flavor, color, and odor molecules, and some such "acceptors" have been used successfully.

¶ *Distillation at low temperatures during irradiation.* Volatile off-flavors and their precursors have been removed to some degree from liquid foods in this way. The practicality

of this method appears limited but it offers a means of characterizing and studying compounds produced during irradiation and consequently can be helpful in research.

All of these are methods of minimizing indirect effects of irradiation of food.

The molecules responsible for flavor, color, and texture also may be directly affected in detectable ways, and studies of two methods of dealing with this aspect of the problem have led to significant results. Both involve reduction of the total radiation dose.

One of these methods is to combine radiation with thermal energy. The effects can be complementary, and research has shown that the addition of relatively small amounts of ionizing energy may be a way of reducing the thermal energy needed for canning.

A second method of reducing the radiation requirements would be to employ a safe chemical agent to reduce the resistance of micro-organisms to ionizing radiation, and thus prevent undesirable side reactions. Some progress in this direction has been made in work with vitamin K_5 in the M.I.T. Department of Nutrition, Food Science and Technology.

The Prospects Now

What, in the light of findings to date, are the prospects of using irradiation for the preservation of foods? Which foods will be irradiated? How soon? Will irradiation replace other methods?

The Atomic Energy Company of Canada, Ltd., received permission from the Canadian Food and Drug Directorate last fall to subject a million pounds of potatoes to a 10,000-roentgen-adsorbed dosage with a mobile Cobalt-60 demonstration irradiator. Research has shown that potatoes and onions can be kept from sprouting by such relatively low doses, and the Canadian company is now seeking information regarding the economics of the process and public acceptance of the products. This is an important step which should yield valuable data.

At M.I.T. it was found some years ago that certain chopped meats (pork and hamburger) could be kept at refrigeration temperatures above freezing for several months if they were given sub-sterilizing doses of ionizing energy (a million roentgens or less). Such meats ordinarily spoil within about seven days if kept at temperatures above freezing. Hence, even though complete sterilization of meat may not be desirable because of side reactions, a "pasteurization" process could offer economic advantages.

Similar studies with fish fillets have suggested the possibility of preserving marine products in a refrigerated state long enough to supply them to interior parts of the country where such foods now are received only in a frozen state.

Associate Professor John T. R. Nickerson, '32, and his colleagues at M.I.T. began an evaluation of this idea last year under the sponsorship of the Atomic Energy Commission. With a 32,000-curie Cobalt 60 source now installed at the Institute about 320 pounds of food per day can be processed. Low dosages may not only reduce the possibility of undesirable side reactions and minimize wholesomeness problems, but facilitate obtaining the approval of the Food and Drug Administration. Future decisions regarding research then could be based on actual market findings.

The Atomic Energy Commission also is sponsoring studies of the use of radiation to prevent or inhibit crown rot in scald and other diseases of fruit. Findings thus far indicate that there may be potentialities here worthy of further exploration. The use of radiation to destroy Salmonella organisms in dried eggs and egg products also is being studied.

Other possible applications include the use of ionizing energy to destroy trichinae in pork and insects in grain and flour. These do not appear too promising. There are equally efficacious ways of dealing with trichinae, and while insects in grain and flour can be destroyed with relatively low dosages, reinfestations can still pose problems.

Since 1953 the Quartermaster Corps has invested upwards of $15,000,000 in studies of the radiation sterilization of food that have contributed a great deal to our fundamental knowledge of the problem. Many of the canned hams sold today are not sterile throughout and must be held in refrigerated storage. By using radiation to supplement thermal sterilization, ration components superior to those now available may be developed.

Research is no longer limited, as it once was, to three American laboratories. It is under way now in Germany, Japan, and other countries, and a full-scale international conference at Kyoto last summer dealt with the use of ionizing energy to preserve food and drugs as well as agricultural applications. This meeting attracted 500 delegates and opened the way for helpful international exchanges of knowledge.

In the light of what is now known it seems realistic to expect that within the next five or 10 years, ionizing energy will be used to at least a limited extent in commercial food preservation processes. Frozen foods have not replaced or supplanted canned foods, and radiation processing will not result in discontinuance of canning and freezing. But radiation will find its own particular niche in the market place as the work now under way progresses.



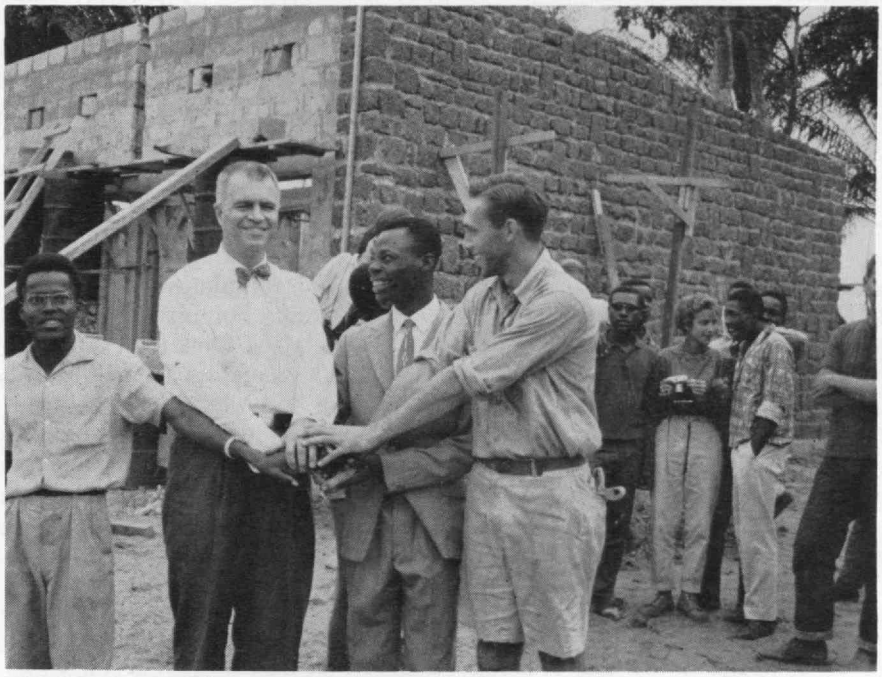
M.I.T. Alumni met to honor Prof. Goldblith on his recent return to Manila.

Dispelling an Image in Africa

By hard manual labor, American boys and girls have both helped the Gabonese build a laboratory and affected their views of us

BY STEPHEN N. SALOMON

STEPHEN N. SALOMON, '61, was one of the M.I.T. men who went to Africa to work last summer with a Crossroads Africa group. While at Libreville, Gabon, he wrote a series of articles for his hometown newspaper, The Squirrel Hill (Pa.) News, *from which the account of his work that follows was extracted. Mr. Salomon speaks French fluently, and is now studying physics at the University of Paris.*



Visitors to the research laboratory the author helped build in Gabon included G. Mennen Williams of the U. S. State Department. Clasping his hand are (from left) Jacques Mengue M'Eyi, Gabonese student leader; Jean-Maac Ekoh, Minister of Labor; and Raymond Lamontagne, American student leader.

LIBREVILLE, Gabon

Each morning at the crack of dawn I lift my head from my pillow, push aside the white mosquito netting of my bed, and pull on my heavy boots. Another typical workday has begun. For a person reared on bacon and eggs, the short breakfast of hot chocolate and bread is quite a change for the start of a workday. After a jolting ride in a dump truck, our motley group of American and Gabonese students arrives at the work site at 7:00 A.M. We are joined by workers from the Public Works of Gabon.

Before beginning work, we shake hands with the workmen. The handshaking ceremony, which is prevalent everywhere in Libreville, is accompanied by a friendly *"Bonjour"* or *"Ca va?"* and consists of only one pump of the hand.

Our project is to build a scientific research center with five rooms. They are for laboratory work in the human sciences and hydrology. This fits the present needs of Gabon. Electronics and atomic physics have been left for the advanced countries. Our building has progressed to the stage where there are steel reinforcing rods in the air. Having something above ground level is a comforting sight.

On account of the large amount of rain during the wet season, it is best to build with concrete. As a result, we have the task of moving about by hand large quantities of heavy concrete and rock for the foundations, floors, and walls. The rule here is "Do the best you can with what is available." If we need sand, we hop in a truck and go to the beach for it. Building rocks for the walls are found along the back roads outside of the city and chiseled square by hand. The one machine we do have is a small cement mixer, which has saved a lot of time. The enervating task is carrying the cement from the machine to the site where it is needed. This is accomplished by a small hopper with two handles on each side for carrying. If we only had a cement buggy! Frequently there are work stoppages because of lack of materials. With a little more planning, the materials could be on the site when needed.

The Banana Break

By 11:00 A.M., all 280 pounds of Giselle, the directrice of the orphanage at which we are staying, is a welcome sight. That jolly woman comes toting food for our banana break. Fortified with bananas, soft drinks, and meat sandwiches, our group is ready to work again. The workmen also have their break of palm wine and bread. Alfred, our Gabonese foreman, is able to chug-a-lug one quart of palm wine with no trouble at all. He keeps the workers going by continually shouting at them.

The workmen have been favorably impressed by our interest in them, the work project, and the

good job we do. The four American and three Gabonese girls in our group have been exceptionally good in demonstrating that manual labor is not beneath their dignity. This they have accomplished by working as hard as the fellows.

To most Africans, the image of the white man has always been that of a director who never dirties his hands. This has been reflected in their art work. For example, we saw a set of figurines, four black and one white. The black figurines were engaged in various types of work. The white one had no arms! This image we are trying to dispel.

On account of the heat during the afternoon, laborers quit at 1:00 P.M. However, they still get a 40-hour week in by working six hours and 40 minutes a day, six days a week. An unskilled laborer receives a wage of 8⅓ cents per hour, which is just enough to maintain minimal living. The office workers have unions but the laborers do not.

After quitting time, we climb into the dump truck with the workers for the ride home. On the way we sing and jest as pedestrians stop and stare.

We are unable to take a shower after work, since the water is turned off during this part of the day because of the dry season we are in now. However, we can wash up a little before our largest meal of the day.

The food we eat is typically French and is eaten by most of the people in the cities. However, in the interior, the native foods of manioc and banana form the main staple. We usually have fresh tomatoes and hard-boiled eggs on boiled potatoes for an appetizer. If the main dish is not fish, we have beefsteak with noodles, or perhaps string beans. The dessert is usually fresh fruit, such as oranges or grapefruits. There is wine at every meal, in addition to soft drinks or beer.

The water here is purified and good to drink, but the people prefer to follow the French tradition. The amazing thing about our meals is that all the cooking is done on a wood stove and almost all the food is imported. For example, meat comes from the Cameroun or Chad and fresh vegetables from Algeria. The wine and wheat for the bread come from France. The only indigenous foods are fish and bananas. Cattle cannot be raised on account of the tsetse fly and a lack of grazing land. In this respect Gabon is very dependent on outside countries, and as a result the food is between three and four times as expensive as in the U.S.

Since we don't work during the afternoon, we are free to go to the beach, walk around town, or take a siesta as do many of the people. If we want to go shopping, we have to wait until three o'clock, since the stores here, like those in France, are closed between one and three.

Generally I choose to go to the beach more often than any other single place. A half dozen of us can usually be mustered together to start the five-kilometer hike to the beach. Usually, before we have completed the first kilometer, we are able to hitch a ride on some kind of truck. The girls can flag one down without any trouble. Before climbing aboard, we greet the driver and his assistants and shake hands with them. This is done at both the beginning and the end of the ride. Often the trucks are marked "No Riders," but this does not seem to faze the drivers.

The Church Still Stands

In 1842 a group of American Protestant missionaries came to Gabon from New England. Not knowing exactly what to expect, they brought wood and other materials to build the first church in Libreville, a building which still stands with its original hand-hewn pews and pulpit. In back of the church is a graveyard, standing testimony to many brave and idealistic Americans in their early 20's who came to Gabon and died from tropical diseases. Even so, through persistent effort some were able to establish more missions in the interior. Today from time to time one finds a Gabonese who was trained by the missionaries and who can speak English. Words like glass and table slightly changed have entered into the Fang language spoken by a large tribe in Gabon.

In other fields American interest has been less strongly felt. In all of Gabon there is only one American in the school system; she teaches English at the Lycée Technique. She is an American Negro married to a Gabonese and was largely responsible for making preliminary arrangements for our "Crossroads" group. Perhaps the newly chartered Peace Corps will help supply badly needed English teachers, the first crucial aid to the country.



M.I.T. students who took part in the Crossroads Africa work last summer have been recruiters for it this year. All participants must be deeply interested in intercultural activities. Patrick H. Murray, '62, of Annapolis, Md., is shown here with a mask that he brought home from Nigeria.

A Computer-Controlled Hand Imitates a Child

It "plays" with blocks to assist study of artificial intelligence

HEINRICH A. ERNST, '59, has built a mechanical hand that works with wooden blocks very much in the manner of a young child. The hand explores its environment by a sense of touch. It can locate a block, determine its size, pick it up, and place it on top of another block to make a pile of blocks. It can also find a box and put blocks into it.

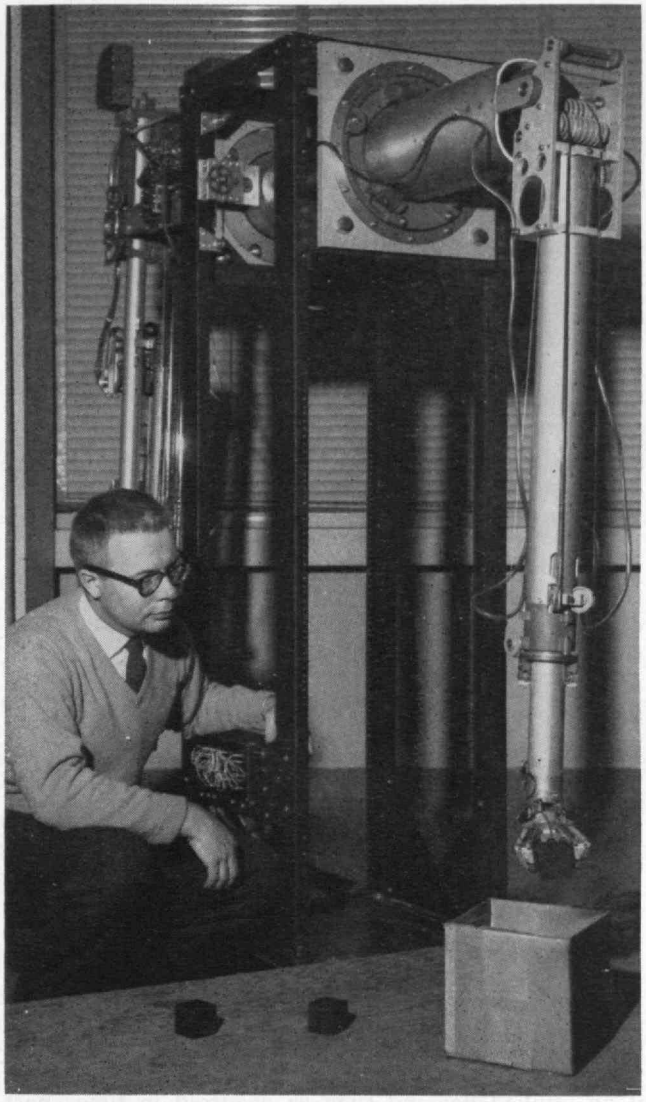
This hand is controlled by a computer and was developed for the study of artificial intelligence in a doctoral program supervised by Professor Claude E. Shannon, '40. With the computer, it forms possibly the first artificial creature capable both of dealing with the outside world and having a limited understanding of it.

Artificial intelligence studies, according to Dr. Ernst, are aimed at finding mechanical means of solving problems that seem to require human intelligence and simultaneously gaining more understanding of human behavior. Although most of the research thus far has been done with computers, and on such problems as chess playing, several artificial animals have been built in recent years. These have included small motorized "beetles" that seek light sources, but their capabilities for processing information have been very low. The reactions of these small artificial animals, consequently, have been comparable to those of an amoeba crawling away from light. Higher animals receive a rich flow of information from the outside world through their sense organs, modify the outside world, and alter their behavior as they bring about changes. The hand that Dr. Ernst built is equipped with sensors and combined with a computer to permit a new approach to artificial intelligence problems.

"Instead of concentrating on the advanced human intellectual activities such as mathematics, we wanted to study the more elementary capability of animals to cope with their environment," Dr. Ernst explains. "We wanted to study the cognitive, or thinking, processes in connection with the everyday activities of human beings and animals—such functions as grasping objects, lifting them, collecting, and piling them. Hardly anything about the mental processes controlling these actions is known.

"One application of the mechanism may be in research in psychology and neurology. It appears to be a potentially useful experimental tool in these fields because it makes it possible to study in detail the mechanics of complicated animal-like control systems—something that can't be done with living beings."

The mechanical hand and arm that Ernst began with was an off-the-shelf commercial device of the type that is operated manually for remote handling of radioactive materials. Dr. Ernst equipped this hand with 30 sense organs, some of which are "kinesthetic" and determine the position of the hand, and some of which react to pressure. He also wrote a computer program which performs the necessary "cognitive processes." The hand and its control unit then were connected to M.I.T.'s TX-0 computer to form a complete system.



Sensors and a computer operate Dr. Ernst's artificial hand.

In searching for an object, the hand gropes hesitatingly like a person in the dark, carefully exploring all of the area in front of it and always remaining a half-inch above the surface. When it brushes against a block, it moves around the block, touching it to learn its size and location, then—in the block-piling task—moves off to find another block and put it on top of the first.

Perhaps the most important feature of the hand-computer system is its ability to deal with the unexpected, Dr. Ernst says. If a board is placed to bar the path of the searching hand, the hand by its own initiative will feel its way around the board. "In other words, the system is capable of understanding its environment, even though in a limited fashion, because it is capable of correlating its program—in the computer—with the problem it faces. Much of our learning is exactly that, too—some procedures are taught us, but it is up to us to apply them."

Talk of Our Times

Biology in the Future

DR. JONAS E. SALK *of the Virus Research Laboratory at the University of Pittsburgh's School of Medicine was one of those who discussed the future of biology during the observance of M.I.T.'s Centennial. Dr. Salk called attention to similarities between the central nervous system and the immunologic system in man, and the possibility of developing what might be more desirable human attributes and capabilities.*

He then said in part:

WHAT is the goal to which we are drawn? Is it toward outer space, is it for more things, more pleasures and excitement; or is it the wonder and depth of the possibilities within ourselves—or, perhaps, all three toward which we are drawn? How do we judge the value or importance of each? What is our point of reference?

If the central problem of the day concerns our understanding of the nature of man as expressed by his needs and aspirations, and if this is a biological question in part, and one which will long continue to be of great concern, it would seem that the future of biology is tied not only to the substance of its own past but also to the need for which society now requires the aid of this science.

Once again, a science which probably began in the spirit of idle curiosity or exploration, or with an impulse akin to that of the artist, now has placed before it an implied demand such as occurred in times past when, for example, the needs of navigation spurred the evolution of astronomy and physics; and then, later, chemistry and physics flourished under the influence of the industrial revolution. The rise of each science, in turn, has been followed by its elevation to a leading position to serve a need that initially contributed to its rise.

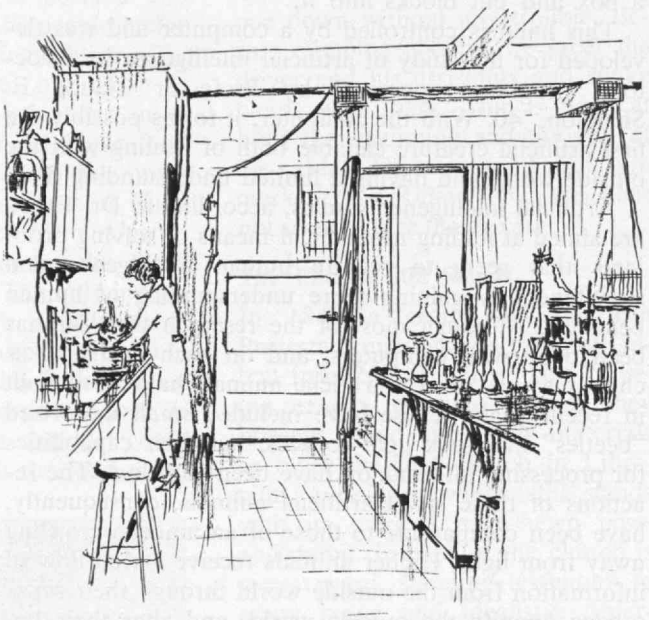
The motives of those who are engaged in biological as in other scientific pursuits are now, as in the past, not all the same. For some the motive is similar to that of an explorer or mountain climber who derives pleasure from satisfying a challenging desire to explore and to conquer. For some it is as for the artist who does what he does not because of any usefulness that will be served but for the pleasure he derives in creating or revealing something that did not exist or was not revealed before. For still others, science serves as a means for satisfying the desire to improve man's lot in life by pointing the way to solutions, as is sometimes expressed in other ways by those who are similarly motivated but who point up a question in writing a story, a poem, a novel, or a play.

From this viewpoint, what is the scope and future direction of biology?

The continued development of biology from the substance of its own past will in time unfold the nature of the information systems that maintain the continuity of life and will reveal the decoding and translating mechanisms which are part of the synthesizing processes of the complex systems within the cell. This area of biology unites genetics with many other disciplines and is now called molecular biology.

Another area of biology in which knowledge continues to expand, and to which advances in molecular biology will greatly contribute, is that of growth and development. For this, concepts of a different order are required beyond those that can be transposed from the laws governing physics and chemistry, and to which mathematical analyses cannot now be applied in the same sense as in the physical sciences. This is called organismic biology.

Still another area of advancing knowledge deals with the adaptation of organisms to the physical and social universe in which they exist. When the physical trials of survival were of paramount importance for man, the concepts of ecology could be said to apply. Man's principal problem now, however, is not ecologic but social, and for this reason we might well refer to this area of knowledge as social biology. It should be evident that the knowledge and concepts of genetics developed by molecular biologists, and the knowledge and concepts derived from studies in growth and development of the organism and of the needs and requirements imprinted in its protoplasm, will contribute importantly to basic social biology. Psycho-biology serves as a bridge between organismic and social biology.



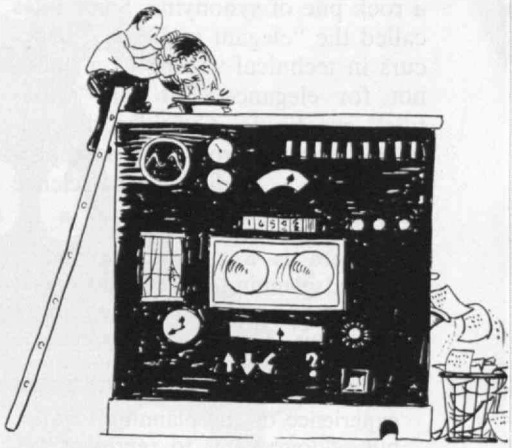
An M.I.T. biology laboratory, as drawn by Percy Lund.

It would be well to recognize the existence of another area that may be expected to develop in the future and the development of which will be of interest to those who share the feelings and understanding of the biologist Edmund Sinnott when he speaks of the "biology of the spirit." Especially as scientists we must acknowledge the existence of needs that still remain beyond those that are usually considered at the molecular, organismic, and social levels of integration. Here one would be concerned with aesthetics, the humani-

(*Continued on page 44*)

The Inhuman Style

Pseudo-infallibility, pseudo-impersonality, and irresponsible use of the language make too many technical reports dull and clumsy

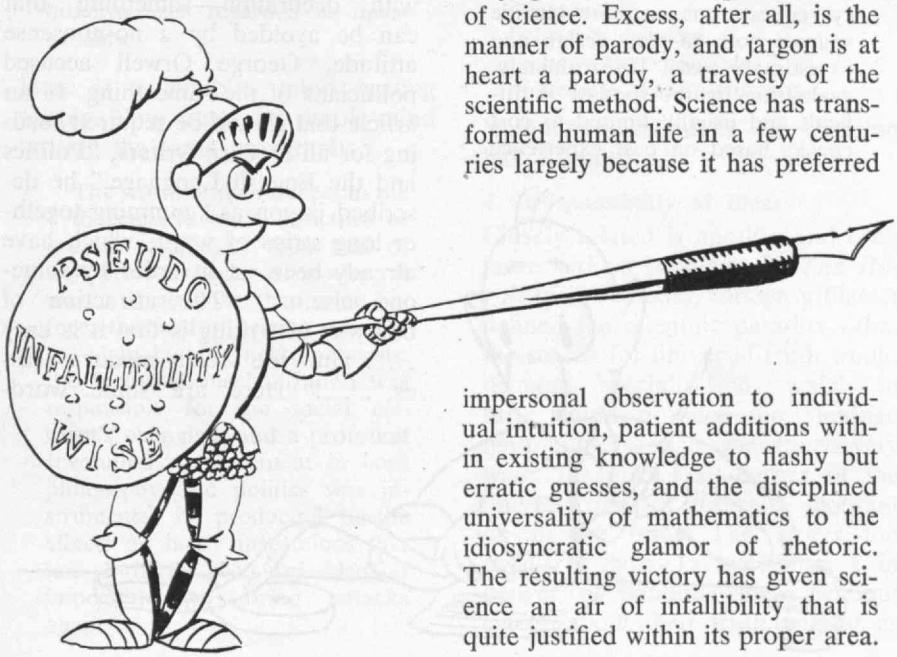


BY DOUGLAS SCOTT

THIS is for all technical writers, whose enemy I will pretend to be. Perhaps "pretend to pretend" would be more accurate. For no modern conflict has been more real, or protracted than that between Science and the Humanities. C. P. Snow writes of "two cultures which have scarcely any contact at all," and it is to one of these cultures that most of you belong, while it is to the other that I, as a teacher of writing and literature, am committed by conviction and economics. And yet communication between us is unavoidable. Every time I ascribe an eclipse to celestial mechanics rather than to witchcraft, every time I use a telephone or watch a missile, I am tacitly confessing your contributions. Humility need not be impossible merely because it is humiliating. Therefore I feel justified in speaking of something we in the Humanities have to offer you.

Periodically in your reports you must replace mathematics, diagrams, and graphs with the English language. For your purposes it is an inherently inferior tool, but a necessary one. The product is called technical writing, and the simple truth is that much of it is shockingly bad. It is not bad because it breaks the rules of comma-tracking grammarians. It is bad because its readers, whether they admit it or not, find it harder, duller, and clumsier than necessary. Reading a mass of technical reports, struck by the apparent sameness of the faults, one is tempted to produce a dictionary of don't's, a proscriptive phrase-book. But closer examination reveals that the apparent sameness is often deceptive, as with the faces of a foreign race. Beneath the similar coloration exists a multitude of individual features. Consequently I think it is profitable to examine the cause rather than the symptoms of the disease.

For I believe the principal cause of jargon to be a misplaced excess of science. Excess, after all, is the manner of parody, and jargon is at heart a parody, a travesty of the scientific method. Science has transformed human life in a few centuries largely because it has preferred impersonal observation to individual intuition, patient additions within existing knowledge to flashy but erratic guesses, and the disciplined universality of mathematics to the idiosyncratic glamor of rhetoric. The resulting victory has given science an air of infallibility that is quite justified within its proper area.



DOUGLAS SCOTT now writes for the RAND Corporation in Santa Monica, Calif. He has taught at the University of California, and has been associated with Robert R. Rathbone of the M.I.T. Faculty in special programs to help technical writers. Henry B. Kane, '24, produced the drawings.

But when a parody of science dominates an improper area—such as prose style—the result is disastrous. The result is the inhuman style: a pseudo-infallibility and impersonality of the author, combined with an irresponsibility of language and of ideas. I would like to examine each of these.

1. Pseudo-infallibility

Here the writer sets himself off from an inferior world by using impressive, technical words that are unnecessary, redundant, and even inaccurate. At best, the overuse of *causation, functional, implement,* and *grid-wise* is as comic as a child dazzled by new toys. But many writers have fallen in love with words like *field, factor, case, structure, element,* and *degree,* words that do have precise, legitimate meanings, but as used by the jargonists are zero-content nouns. Any meaning they then have must come from modifiers. For example:

> In the case of the fourth process, however, a problem is presented which is difficult.

Case ruins this sentence. Remove it, and you remove seven words, a passive verb, a prepositional phrase, and a dependent clause:

> The fourth process, however, presents a difficult problem.

As annoying is the "thesaurus style" that buries the reader under

a rock pile of synonyms. Sometimes called the "elegant variation," it occurs in technical writing as a quest, not for elegance, but for "scientific" exactitude. Consider the following extract from a report produced by a leading space-science corporation:

> There is a tendency in advanced planning exercises to emphasize one of two things, costing or design. The relative emphasis placed upon these functions depends upon the background and experience of the planning team, but seldom seems to represent a proper balance of the two. Consider for example the following techniques, which are typical of those employed by various organizations.
>
> SR (Study Request) Approach
> Regressive Approach
> Pure Cost or Pure Design Approach
>
> The SR (Study Request) technique is often used by military organizations for advanced planning. In this particular approach contracts for the complete study are let by the sponsoring agency to one or more outside sources, which are expected to conduct or perform the system design studies as well as the cost estimates. It may be difficult for the sponsoring agency to interpret and properly evaluate the divergent approaches taken by these outside sources, especially when the outside sources are asked to design completely new concepts, which of course are implied in the concept of the study request concept. Checks of the estimated costs are usually based on strictly regressive techniques. Regressive techniques are severely limited when extrapolations to new and different vehicles or processes are required because the newness or novelty of the system is a strong index of possible large, unexpected expenditures.

Why is this so impressively difficult as to appear profound to a naïve reader? Notice how often the writer supplies one or more synonyms: *background and experience; conduct or perform; interpret and evaluate; new and different; vehicles or processes; newness or novelty*. Such excruciating distinctions summon visions of laboratories filled with self-denying scientists leaving no beaker unturned. Now notice the writer's habit of changing terms every sentence, slowing the reader to a crawl, convincing him that there's more there than meets the eye. *Thing* becomes *function; system* becomes *concept;* and *technique* alternates with *approach*. But the master stroke is using *concept* three times in one sentence, to mean *system, nature,* and *method*. Compared to that, *extrapolation* and *index* are mere bonuses.



What happens when this is stripped of pseudo-infallibility? It collapses. Profundities become elementals, and 213 words become 70:

> Advanced planning exercises tend to overemphasize either costing or design. Consider these typical planning methods:
>
> SR (Study Request)
> Regressive
> Pure Cost
> Pure Design
>
> In SR, common in military organizations, the sponsoring agency requests one or more outside sources both to plan design and to estimate costs. Unfortunately, evaluation by the sponsor is difficult and usually limited to cost checks based on past experience which, since the design is new, is often obsolete.

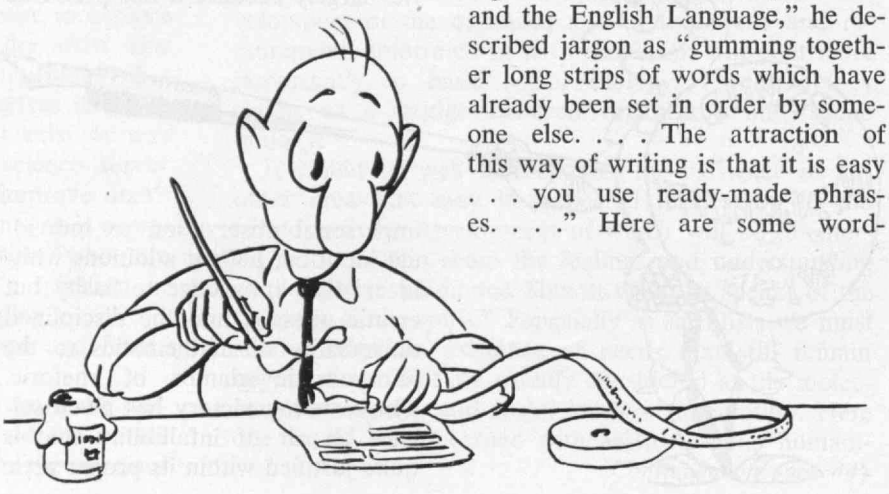
2. Pseudo-impersonality

In the scientific universe, Phoebus no longer chariots the sun to the west; instead, a planet is acted upon by impersonal forces in relationship to a sphere of exploding gas. All well and good. Bulfinch's loss is Palomar's gain. But no one gains when a writer assumes he is a machine speaking to other machines about the reactions of machines.

The pseudo-impersonal writer, by seeking humility and objectivity, only destroys his verbs, the principal source of vitality in an English sentence. I have read 200-page reports without a single active verb. Somehow their writers feel that third-person passive verbs, noun clusters, and *there are/it is* constructions are more scientific. They instinctively prefer "the equipment was acquired by purchase which there are tendencies among organizations to omit" to "we bought the equipment that organizations tend to omit." Reading such jargon is rather like watching a bad academic play where all action takes place off-stage and is reported by a nonhuman Chorus. The audience, though captive, could not be more bored.

3. Irresponsibility of Language

One reason that the technical writer is often shocked by any criticism is that he feels little personal responsibility for his own prose style. Style, in fact, is usually confused with decoration—something that can be avoided by a no-nonsense attitude. George Orwell accused politicians of the same thing. In an article that should be required reading for all modern writers, "Politics and the English Language," he described jargon as "gumming together long strips of words which have already been set in order by someone else. . . . The attraction of this way of writing is that it is easy . . . you use ready-made phrases. . . ." Here are some word-



strips with their English equivalents:

met with the approval of the department	the department approved
make an attempt	try
reach a decision	decide
resembling in nature	like
in many instances	often
with respect to	about

There are thousands of these prefabricated phrases, and the solution is not in memorizing them, but in feeling responsible as a writer for the language you use. If politicians sin from laziness, perhaps scientists sin from humility. "Who am I," you may ask, "to write my own language? Just as I manipulate existing formulae into new combinations, why shouldn't I do the same to common verbal phrases?" The answer is that, unlike formulae, verbal phrases have a vagueness that allows them to be combined into sentences that are at best clumsy, and at worst meaningless. You, alone, choose your words, images, and order. If you choose clichés, you have only yourself to blame when you are misread or unread.

Examine an abridged passage from Bertrand Russell, whose prose is as fine as his mathematics:

> The intellect of the 19th century was more complex than that of any previous age. The area concerned was larger than ever before; science made new conquests; machines profoundly altered society; and a revolt, both philosophical and political, attacked many institutions that had hitherto been regarded as unassailable.

Here is a complex mind writing simply. Now imagine a simple mind writing the same paragraph:

> The world of the intellect in the 19th century was a structure of greater complexity than that of any previous age. Area-wise, it was a larger size than ever before; the field of science was engaged in making new conquests; the factor of mechanization was responsible for the social element's changing; and a profound revolutionary movement in both philosophy and politics was instrumental in producing hostile effects on many institutions that had hitherto been regarded as impossible to bring attacks against.



It is now twice as long and takes even more than twice as much time to read. The second writer has irresponsibly "gummed together long strips of words." He has forgotten, if he ever knew, that every English sentence is a variation on *John loves Mary* (Subject-Verb-Object) and *Mary is happy* (Subject-Verb-Complement). The SVO/C is the core of English syntax, and a vigorous style uses it. For comparison, extract the SVO/C's from the two examples above. The first reads:

> intellect was complex
> area was larger
> science made conquests
> machines altered society
> revolt attacked institutions.

The skeleton almost suffices. In contrast, the second reads:

> world was structure
> it was size
> field was engaged
> factor was responsible
> movement was instrumental.

Without the modifiers, the meaning has disappeared.

4. Irresponsibility of Ideas

Closely related is another and even more serious problem. In *The Revolt of the Masses,* Ortega y Gasset defined the scientific paradox—that the search for universal truth would demand specialization, which in turn would produce the "learned ignoramus," a man who knows very well "his own, tiny corner of the universe, but is radically ignorant of all the rest." The writer too proud of being a specialist is in danger of handling ideas without caring about their truth, almost as if that were someone else's job. He may feel that he is only emulating the objective scientist who reports fact, not opinion. And yet jargon is nowhere more annoying than when it smuggles personal opinion under an impersonal cloak. Then "I think" becomes "the hypothesis suggests itself." Because "we must examine the evidence before deciding on the solution" sounds too vulnerable, it becomes "careful consideration of relevant data is imperative before the procedure most conducive towards a realization of the desired outcomes can be determined."

This, in the words of Big Daddy, is mendacity. It may be unintentional, or even from the best of motives, but it is not honest; neither is it good prose. The two are not so far apart as is often thought. "A writing tradition which removes a portion of humanity," writes W. F. Thompson, "is also liable to remove a portion of truth." A technical document is never closer to a Soviet press release than when it hides a human idea in an anonymous vacuum.

Science, like sugar, is a good, but a misplaced excess of either is a disease. Jargon is diabetic prose, often beyond the quick remedies of an editorial pencil. The cure, I think, is in the mind of the writer. He must try to inform, not to impress; he must understand that the only bridge between his mind and audience is his own skill with words; and finally, he must acknowledge that every idea he writes originated in a human mind, which may be its greatest limitation, but is assuredly its greatest glory.

To Study the Brain And Behavior

Psychologists will move to new laboratories in Cenco Building

M.I.T. RECEIVED a health research facilities grant of $252,690 this winter from the U.S. Public Health Service for converting the former Cenco Building at 79 Amherst Street into a Psychology Research Building. On completion, this building will house the experimental laboratories of the Institute's expanded Psychology Section under its new Head, Professor Hans-Lukas Teuber.

The first floor of the building will be used for offices, seminar rooms, and a staff library; the second floor for laboratories for physiological, perceptual and linguistic studies, and machine shops; and the top floor for animal quarters, operating and testing facilities, and an histology laboratory, including provisions for neurochemistry.

In this setting, the research program of the Psychology Section will be devoted primarily to three topics:

1) Perception, in young and mature organisms, including consideration of the role of normal and abnormal sensory input;

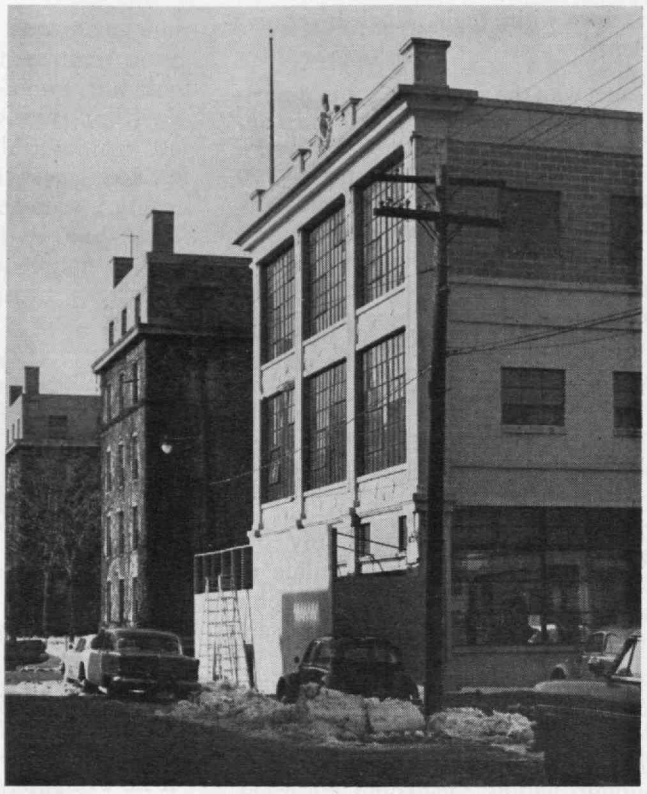
2) Child development and early forms of social interaction, especially the acquisition of language and logic by young children;

3) Studies of brain-behavior relationships (neuropsychology—the study of the ways in which man's sensory, motor, and intellectual functions depend on the integrity of his brain).

In their new quarters, members of the Psychology Section, together with postdoctoral fellows and visiting scientists, will be able to work under one roof, and to devote themselves to studies of behavior in man and animals.

The work in perception, for instance, will continue to test the application of signal and pattern-detection theory and of similar formal models derived from the theory of communication. There also is considerable interest in studies of pattern vision in animals greatly dissimilar from man, such as the octopus, where certain basic features of perception are, so to speak, laid bare. In addition, there will be work on effects of radically altering the sensory input, for example, by prolonged wearing of distorting or reversing spectacles. In this way, studies of perception are carried out to test the conditions and limits of perceptual adaptation in normal adults, in children, and in various species below man. These investigations will be in the hands of Visiting Professor R. Held (after July 1, 1962), and of Drs. Davis H. Howes, 3d, John A. Swets, David M. Green, '57, and their associates, as well as Visiting Associate Professor Norman S. Sutherland.

The continuing program of research in psycho-linguistics deals with the earliest stages in the development of language and thought (Professor Roger W. Brown, in collaboration with Professors Noam A. Chomsky and Morris Halle), and with varied forms of dissolution of language in the presence of brain lesions or brain disease (Professor Howes in collaboration with Dr. Norman Geschwind). Personality development and expressive behavior, in children, in young adults, and in old age, will also be investigated (Assistant Professor Michael A. Wallach).



Remodeling of the Cenco Building began in December.

Neuropsychology—the study of brain-behavior relationships—includes the work of Assistant Professor Ronald Melzack who is engaged in a systematic exploration of the central nerve pathways for pain and other bodily sensations. Furthermore, he will continue his studies of the role of drastic early deprivation (restricted rearing in dogs), on reaction to pain and other stimuli, and on general intellectual function. In addition, Professor Teuber is moving his own neuropsychological laboratory staff (which used to be at the New York University Bellevue Medical Center) into the new Psychology Research Building. The work of this specialized laboratory, under a seven-year program grant from the National Institutes of Health, is concerned with systematic studies of the effects of brain injuries and ablations in previously normal adults, in children, and in animals. Supplementary studies, under this special program, deal with attempts at identifying neural correlates of memory and learning, and particularly with the blocking of memory traces in the brain by direct application of chemical agents.

In some of their work, the M.I.T. psychologists expect to collaborate with both the Boston Veterans Administration Research Hospital and the Massachusetts General Hospital. They also expect to benefit from their proximity to colleagues in other departments, and in the new interdisciplinary centers at the Institute, who are using techniques and concepts that may be helpful.

SIMULATION:
1200 air battles inside a computer

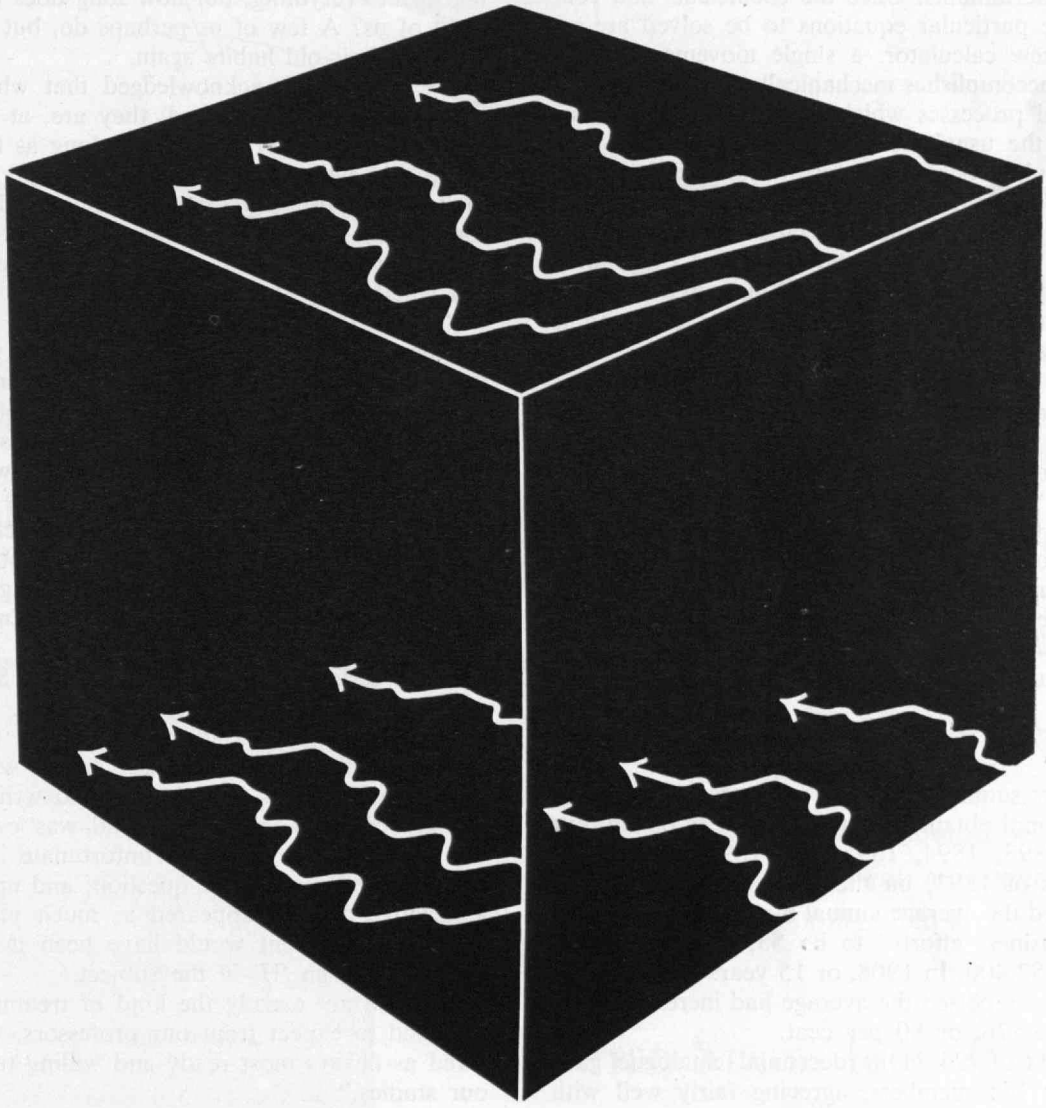
The best way to test new equipment is to put it into actual use. But how can the performance of advanced airborne guidance systems be evaluated without spending millions of dollars in production and flight test of equipment? How can the effect of possible design changes be determined? How much can systems and equipment be improved before over-all performance becomes subject to diminishing returns?

Scientists have been exploring these questions—and many more—at the Simulation Laboratory of the IBM Space Guidance Center in Owego, N. Y. For example, they constructed mathematical and logical models of every factor in a major B-52 air strike. Into an IBM computer went simulation data on enemy missiles, radar, fighter defenses, as well as detailed weather and terrain data and complete aircraft performance parameters. After more than 1200 simulated battles were "fought" inside the computer, the scientists had the answers to their questions.

The IBM people doing simulation studies such as this have extremely varied backgrounds, mathematics, physics, engineering. But they have in common—the ability to "see" physical problems in mathematical terms and to solve them by machine computation. For people with this ability IBM offers the advantages of advanced technical facilities and widely experienced associates.

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Institute Yesteryears

25 Years Ago . . .

"To the Institute's distinguished achievements in the development of mechanical calculating machines for the solution of mathematical problems in science and engineering," The Review announced, "is now added the simultaneous calculator. The new machine, designed and built in the Department of Civil and Sanitary Engineering by Professor John B. Wilbur, '26, is capable of solving nine simultaneous linear algebraic equations. . . .

"Equations of the type [it solves] constantly occur in engineering and scientific analyses covering a wide range of fields. Designed originally for the solution of problems in civil engineering, such as the complex calculations that arise in the design of skyscrapers, the calculator promises to be useful in such diverse fields as nuclear physics, geodetic surveying, genetics, and psychology.

"For the mathematician it is a new tool for the evaluation of determinants. Once the coefficients and constants of the particular equations to be solved are set up in the new calculator, a single movement of the mechanism accomplishes mechanically in a few seconds mathematical processes which might take days if carried out by the usual methods of calculation.

"The simultaneous calculator, which weighs 2,000 pounds and has more than 13,000 separate parts, including 600 feet of flexible steel tape and nearly 1,000 ball-bearing pulleys, is the outgrowth of an experimental laboratory model built by Dr. Wilbur in 1934. The new machine has undergone exhaustive tests and is now in active operation."

¶ Honors came to five Alumni, namely: to *Henry M. Hobart, '89,* the Samuel Wylie Miller Memorial Medal of the American Welding Society . . . to *Andrey A. Potter, '03,* re-election as President of the American Engineering Council . . . to *John C. Kinnear, '07,* the Presidency of the Nevada Mine Owners Association . . . to *Charles Camsell, '09,* the Vice-presidency of the Geological Society of America . . . and to *Edward S. Taylor, '24,* the Sylvanus Albert Reed Award of the Institute of the Aeronautical Sciences.

50 Years Ago . . .

The Review summarized data on average salaries of younger Alumni obtained by the secretaries of the four classes of 1893, 1894, 1895, and 1896, as follows:

The Class of 1893, on the basis of 185 replies in 1903, showed the average annual income from "professional or business efforts" to be $3,082, the median being about $2,400. In 1908, or 15 years after graduation, 152 men reported the average had increased from $3,082 to $5,576, or 80 per cent.

"The Class of '94 in its decennial catalogue gave statistics for 131 members, agreeing fairly well with the corresponding figures for '93. The average, $3,401, is somewhat higher; the median, $2,100, on the other hand, somewhat lower.

"Ninety members of '95 ten years after graduation also averaged about $3,000, with a median a little less than $2,500; while for '96 the figures for 151 men are: average, $3,107 and median, $2,500.

"In dealing with any such statistics, it is perhaps necessary to assume that while due precaution was taken in each case to protect the anonymity of the writer, the man of small professional income may have been less likely to reply, and that the results are therefore somewhat too high. The evidence of the four classes would, nevertheless, appear to prove that the Tech man may nominally expect to earn more than $3,000 per annum within 10 years after entering his profession."

75 Years Ago . . .

In its first issue of the second term, *The Tech* offered "its sincere congratulations to those who have successfully passed the Semies, and extends its sympathy to all those who got stuck. To one and all we would say, we are glad to see you again, and wish you success in your endeavors to keep all those good resolutions which we are sure you have made; for who does not make good resolutions at the beginning of a new term?

"Everyone starts in with the avowed purpose of keeping up in everything; but how long does this last with most of us? A few of us perhaps do, but the majority fall into their old habits again. . . .

"It is generally acknowledged that while examinations are not to be desired, they are, at least for the present, a necessary evil. But so long as there has got to be this evil, should not the professors endeavor to make it less, by stating the questions in plain, straightforward English, so that everyone could see at once what answer is desired, and could at once assure himself whether he knew the answer or not?

"Would this not be much better than endeavoring, as some professors have done, to shroud the questions in such a mystery of involved sentences and grammatical peculiarities, that the poor student not only cannot answer the question satisfactorily to himself, but even does not know whether he is answering what the professor wished him to answer?

"Why some of our professors will therefore continue to write examination papers which are of this vague nature is incomprehensible to us. This vagueness is not the result of their inability to write good English, though it certainly at times would appear so.

"In a certain examination of the last Semies was a question so involved in relative clauses, parenthetical sentences, and vague adjectives, that it took the full intellect of the professor himself to see what he really did mean. That his intention was to write a question nobody could exactly understand was evident, as he was heard asking one poor unfortunate if he grasped the exact meaning of the question; and upon receiving a negative answer, appeared as much pleased as the unfortunate student would have been if told that he had received an 'H' in the subject.

"This is not exactly the kind of treatment we have been led to expect from our professors, who are pictured as always most ready and willing to assist us in our studies."



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It should start with the *end* results you hope for—your aims and objectives for those whom you wish to benefit.

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The Challenge of the materials age



NEEDED: MASTERS OF MOLECULAR CHESS

"Then . . . the time came when our technology began to grow poor amidst its materials riches."

From what civilization did this sober reflection come? Ancient Greece? . . . Rome? . . . Egypt? No, none of these . . . *it is a contemporary statement which points up a strange paradox of our own times.* In spite of the fantastic multitude of new materials which have poured from our laboratories, the force of destiny has carried us beyond their capabilities. It has taken us to the edge of space and to the heart of the atom. To go further requires new materials . . . materials with properties heretofore undreamed of. This is the great challenge of the Materials Age.

To meet the challenge, a new breed of scientist is emerging. This is the materials scientist — part physicist, part metallurgist, part polymer rheologist, part ceramicist, part chessmaster . . . a master manipulator of molecules and atoms. On him rests a great share of the responsibility for our continuing technological progress.

We at Instron are proud to participate in this exciting challenge. We build instruments — sensitive and accurate testing instruments — to assist the researcher in obtaining better understanding of the nature and behavior of materials. Our instruments are used extensively for studying stress-strain properties of single crystals and whiskers, helping to explain properties in terms of molecular and atomic structure. They are used for studying the rheological properties of polymers, the plastic strain fatigue of metals, the strength of pyrolitic graphite or refractory fibers at ultra-high temperatures, and the mechanical properties of semiconductors, to name only a few. Instron instruments are based on modern electronic and servo principles, and their unique versatility provides an unusually broad range of stress-strain testing procedures.

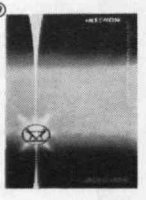
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Individuals Noteworthy

(Continued from page 8)

Senior Executive Class

BUSINESS LEADERS from 10 states and four foreign countries completed a 10-week Executive Development Course in the M.I.T. School of Industrial Management in December. They were:

Frank J. Bednarz, Lockheed Aircraft Corp.; *Samuel B. Burton,* Southern Pacific Co.; *Patrick J. Cherry,* Grumman Aircraft Engineering Corp.; *Roger M. Cruysman,* Ste. Ame. Cockerill-Ougree (Belgium); *Martin F. Gallusser,* Gillette France S.A. (France); *James E. Gray,* Tidewater Oil Co.; *Jome M. Haivala,* Kennecott Copper Corp.; *William R. Harris,* Pittsburgh Plate Glass Co.; *Edgar W. Hertenstein,* Western Electric Co.; *Leavitt Howard,* John Hancock Life Insurance Co.; *Herman F. Kaiser,* Republic Steel Corp.; *Theodore J. Nagel,* American Electric Power Service Corp.; *William J. Newby,* British Petroleum Co., Ltd. (England); *Morton N. Pierson,* Standard-Vacuum Oil Co.; *Paul M. Pitts,* Atlantic Refining Co.; *Amarjit Singh,* Cement Marketing Co. of India, Ltd.; *R. Blair Smith,* International Business Machines Corp.; *John R. Spencer,* Continental Oil Co.; *Lamont L. Thompson,* Westinghouse Electric Co.; *Joseph W. Wiggins,* Thiokol Chemical Corp.; *John Wohnlich,* Aluminium-Industrie Aktien-Gesellschaft (Switzerland); and *Cornelius G. Zwart,* Radio Corporation of America.

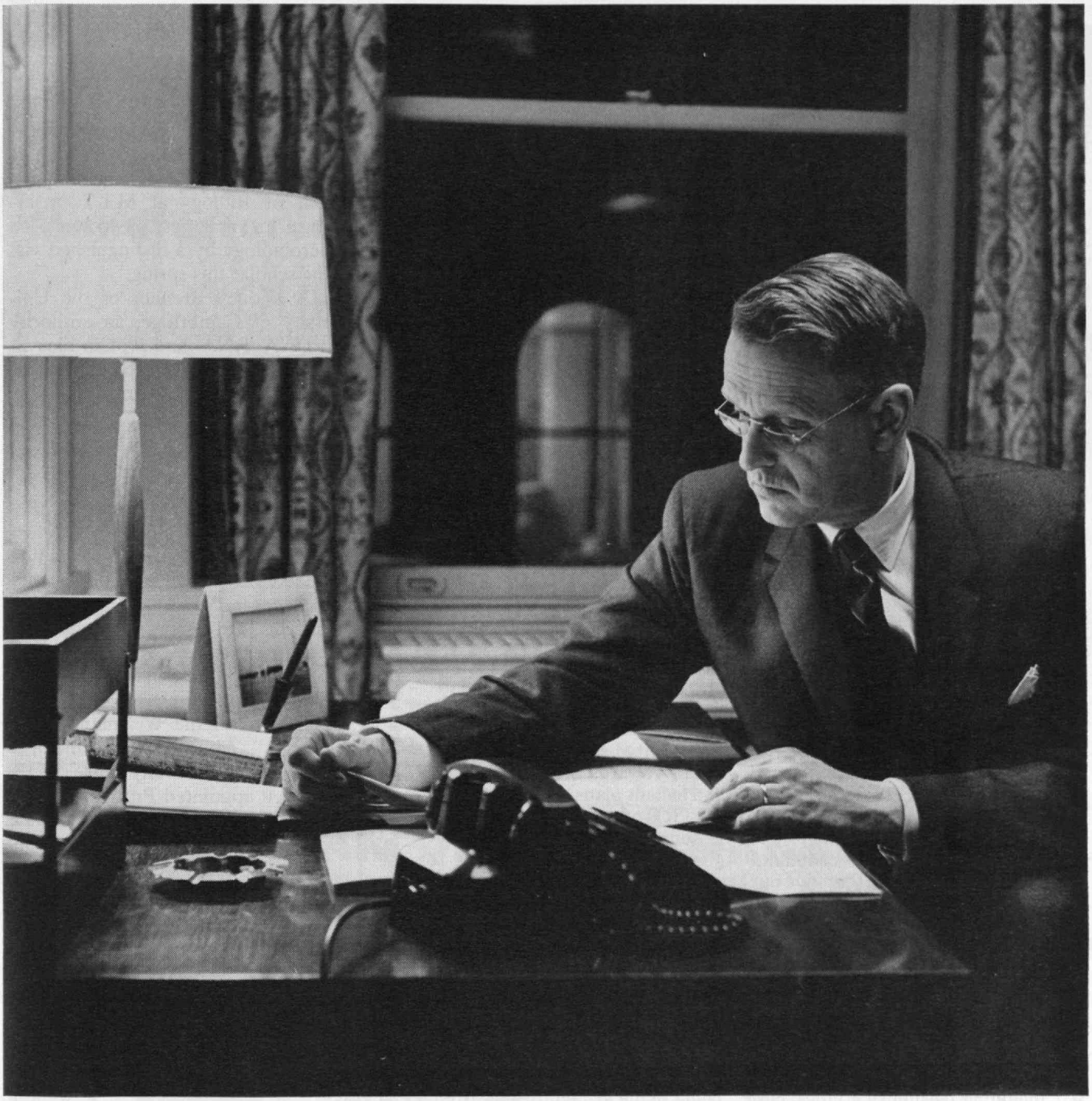
Research Director

RUSSELL C. COILE, '38, has been appointed director of research for the newly organized Marine Corps Section of the M.I.T. Operations Evaluation Group in Washington. A member of the staff of the Commander-in-Chief of the Pacific Fleet during the Korean War, Mr. Coile has been with OEG 14 years.

Lecturing in India

WALTER A. ROSENBLITH, Professor of Communications Biophysics, represented the National Academy of Sciences-National Research Council in an All-India Science Congress in January, and was invited to give a series of lectures at the Tata Institute for Fundamental Research.

(Concluded on page 36)



WILL POWER

RUSSELL EDDY, a Vice President and Trust Officer in the New England Merchants' Trust Department, carries out the spirit as well as the letter of the instructions of a customer's will. For years ago, when the customer and his attorney drew the will, Russ Eddy was there . . . absorbing the customer's intentions.

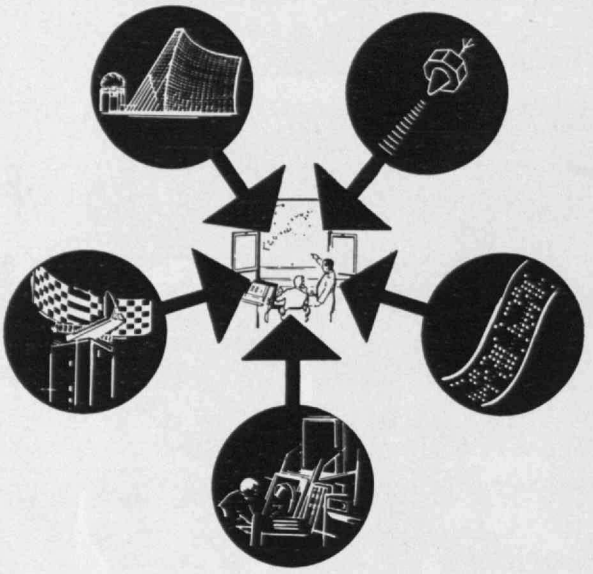
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Individuals Noteworthy

(Concluded from page 34)

Lectures on Biology

THE Foundation for Microbiology, of which Dr. Selman Waksman is chairman, has chosen the Department of Biology at M.I.T. to arrange for a series of lectures on microbiology by a distinguished visiting scholar this spring.

Dr. Sidney Brenner of the University of Cambridge, an authority on DNA, RNA, and protein biosynthesis, will come to the Institute for three weeks next April to give a series of public lectures.

Faculty and Staff News

CHAIRMAN *James R. Killian, Jr., '26*, of the M.I.T. Corporation, presided, and President *Julius A. Stratton, '23*, spoke at the Nutrition Foundation's 20th anniversary luncheon in New York in December. . . . Professor *Jerome B. Wiesner*, President Kennedy's Special Assistant for Science and Technology, has been elected an Honorary Fellow of the Weizmann Institute. . . . *Eli Shapiro*, a member of the M.I.T. Faculty since 1952, has been appointed Professor of Finance at the Harvard Graduate School of Business Administration.

Frank P. Brooks has been made Chief Mechanical Engineer of the Cambridge Electron Accelerator operated jointly by M.I.T. and Harvard. . . . *Jack D. Porter, '51*, former head of the M.I.T. Digital Computer Laboratory's Scientific and Engineering Group, heads the Mitre Corporation's newly formed mathematical analysis department. . . . Professors *Sanborn C. Brown, '44*, and *David R. Whitehouse, '54*, will chair the session on Communications and Diagnostics at the Symposium on Engineering Aspects of Magnetohydrodynamics in Rochester, March 28 and 29.

A "History of Metallography" by Professor *Cyril Stanley Smith, '26*, has won a Charles Phizer and Company, Inc., prize for historical work. . . . A new division of medical biology in the Harvard Medical School will function under *Bert L. Vallee's* leadership *Clair E. Turner, '17*, Professor of Public Health, Emeritus, has become a WHO-UNESCO consultant on a project to promote health education for the United Nations.

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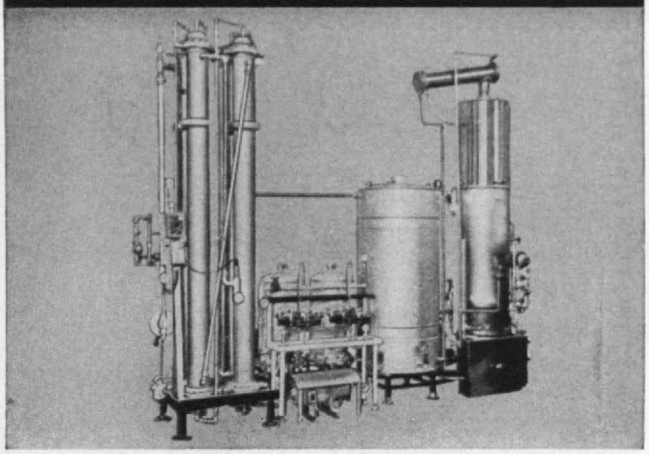
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A. White, '26
T. Hartwell, '28
N. A. Everett, '48
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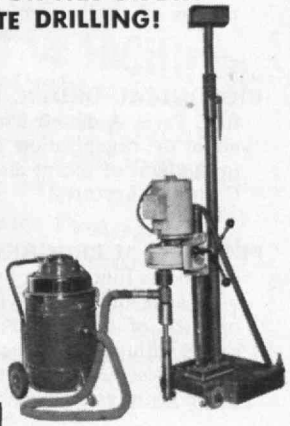
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Trend of Affairs

(Continued from page 14)

Flying Ye Olde Curtiss A-1

DONALD P. GERMERAAD, '50, chief engineering test pilot for the General Dynamics Corporation's Convair Division, flew a replica of the Curtiss A-1 Hydroaeroplane—the Navy's first aircraft—at San Diego last summer to observe naval aviation's 50th anniversary. The builders of the replica altered the controls, so that Germeraad did not have to wear a shoulder yoke and bank by shifting his body—and used aluminum in the tail booms because of the difficulty of running a stress analysis on bamboo knots—but the flight characteristics remained interesting.

The cockpit visibility was excellent when the vibration let him focus on something, the pilot reported in the December, 1961, issue of *Aerospace Engineering;* and he had no problem with the air-conditioning other than adjusting the flow. The instrumentation, he continued, is simple: "If the engine overheats and starts steaming, a radiator line . . . gives the pilot a 'hot foot.'" However: "The real beauty about flying the A-1 is ye olde Curtiss OX-5 engine. That 5 OX power is worth 90 horsepower and it chortles like a kitten. It is a real treat to be seated in front rather than behind this engine so that your goggles are not dripping with oil from the engine or glycol from the radiator." The pilot was enthusiastic, too, about a little black box beside him. "You see," he explained, "the white lines inside this black box are used for mooring the aircraft instead of carrying electronic signals to a computer."

Just Published . . .

THOUGHT AND LANGUAGE, by L. S. Vygotsky, distinguished Russian psychologist. Interaction of concept formation and speech development in children. A "powerful and original book . . . a highly original and thoughtful theory of intellectual development." . . . Jerome S. Bruner, Harvard University. $4.95

STRATEGY AND STRUCTURE: Chapters in the History of the Industrial Enterprise, by Alfred D. Chandler, Jr., M. I. T. This history describes the evolution of the modern multidivisional organization of America's giant corporations: a detailed study of General Motors, Du Pont, Jersey Standard, and Sears Roebuck, with summaries of similar evolution in 70 other corporations. *In press*

BIOLOGICAL ORDER, by Andre Lwoff, Pasteur Institute, Paris. A detailed summary of what is now known about the organization and functioning of living matter in the light of recent discoveries in biochemistry. Third Compton Lectures. *In press*

PETROLEUM PROGRESS AND PROFITS: A History of Process Innovation, by John L. Enos, Calcutta School of Management. A vivid account of the development of each of the seven major petroleum-cracking processes with an economic analysis of their impact on the companies developing them and on the structure of the industry as a whole. $10.00

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Aboard the Streetcar Satellite

IN 1963, a standardized satellite designed to serve as an orbiting geophysical observatory (OGO) is now scheduled to leave Cape Canaveral. Since it will be capable of carrying up to 50 experiments, and be the first of a standardized type, it has become known as a "streetcar satellite."

Nineteen experiments for the first OGO already have been chosen, and three are to be the work of M.I.T. men. These experimenters and their experiments are *Herbert S. Bridge, '50,* of the Laboratory for Nuclear Science at the Institute, proton and electron plasma probe; *Frederick T. Haddock, Jr., '41,* of the University of Michigan, radio astronomy, 2-4 mc's; and *Thomas L. Cline, '61,* of the Goddard Space Flight Center (with E. W. Hones, Jr., of the Institute for Defense Analysis), positron and gamma ray detector.

The National Aeronautics and Space Administration has contracted for the construction of three such orbiting geophysical laboratories. Each vehicle will weigh nearly 900 pounds, be about six feet long and three feet square, and have two solar paddles each of which will be about six feet square. The vehicle will have a power supply, telemetry and supporting facilities for a variety of experiments, and be capable of operating for about a year in any of a variety of orbits.

Since the orbit of the first one will be eccentric, it will be known as EGO. Another one, to be launched about a year later, will be placed in a polar orbit and called POGO.

Storing and Finding Facts

M.I.T. WAS host in November to the 11th annual meeting of the American Documentation Institute, a national organization concerned with the current "information explosion." Several Alumni participated in the discussions of what can be done about it.

Elmer Hutchisson, '24, of the American Institute of Physics, dealt with the responsibilities of national and international scientific bodies; and Calvin N. Mooers, '48, of the Zator Company in Cambridge, was moderator of a seminar which considered steps that professional societies can take.

Rollin D. Morse, '35, of the Du Pont Company, gave a progress report on an indexing plan used by the American Institute of Chemical Engineers' publications, which was designed for both small manual systems and large automatic systems of storing information; and Ralph M. Shoffner, '55, of the Advanced Information Systems Company, described an operations research approach to retrieval of information.

Professor William N. Locke, Director of M.I.T. Libraries, headed the Local Arrangements Committee; and Lawrence F. Buckland, '52, of Itek Laboratories, was in charge of exhibits.

The December Art Sale

HAYDEN GALLERY visitors totaled 5,642 and bought $4800 worth of prints and drawings during an exhibit sponsored by the M.I.T. Art Committee and the Faculty Museum Committee in December. Both contemporary art and work done as long ago as the Seventeenth Century was shown.

(Concluded on page 40)

albert

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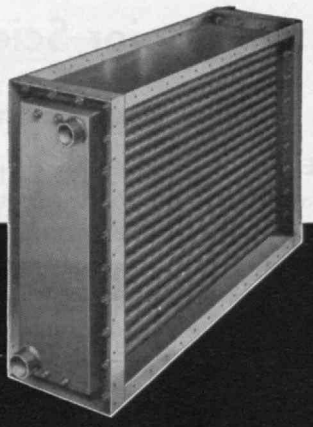
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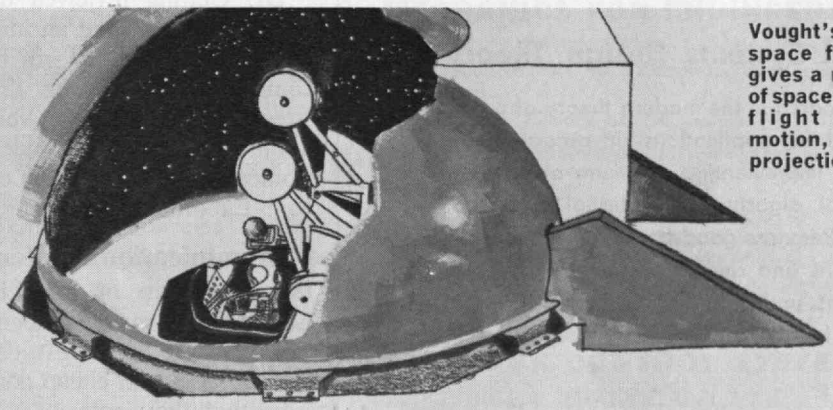
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For information, write or call direct to the following as applicable:

Dr. Steven Sussman, Head, Communications Theory Laboratory
Mr. Joseph Van Horn, Head, Computer Laboratory
Dr. Taffee Tanimoto, Head, Pattern Recognition Laboratory
Dr. Bernard Friedland, Control Systems Design Theory

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Trend of Affairs

(Concluded from page 38)

Townes and Pierce to Speak

THE LAST TWO lectures in "The Age of Electronics" series arranged by Lincoln Laboratory to celebrate its 10th anniversary will be given this month in Kresge Auditorium. Provost Charles H. Townes of M.I.T. will discuss masers at 8:00 P.M. on February 6, and John R. Pierce of the Bell Telephone Laboratories will speak on satellite relays the evening of February 27.

Descendants of Wartime Radar

IN THE SECOND of the Lincoln Laboratory lectures this winter, Ivan A. Getting, '33, President of the Aerospace Corporation and former Professor of Electrical Engineering at M.I.T., reviewed the history of radar.

No single inventor, nor even any one country, he observed, is entitled to credit for radar. Its development was intimately intertwined with political struggle and largely military, yet it has gone far beyond its creators' expectations and is influencing our lives now in many ways. Possibly more than any other technology, he suggested, it has spawned allied technologies, and given them techniques, components, and concepts.

Radar has contributed thus to the development of microwave communication systems, the widespread availability of television, and the servomechanisms and computers that are revolutionizing our ways of using information. It has paid its debt to science, too, by providing such tools as microwave spectroscopy and radio astronomy for those seeking basic knowledge.

Dr. Getting reviewed details of radar's history in which M.I.T. played an important role and concluded: "The next ten years will be critical indeed, and it is comforting that during this period of decision, the strength of our nation, which must necessarily depend upon our qualitative leadership in radar and in electronics in general, will be enhanced by a vigorous Lincoln Laboratory."

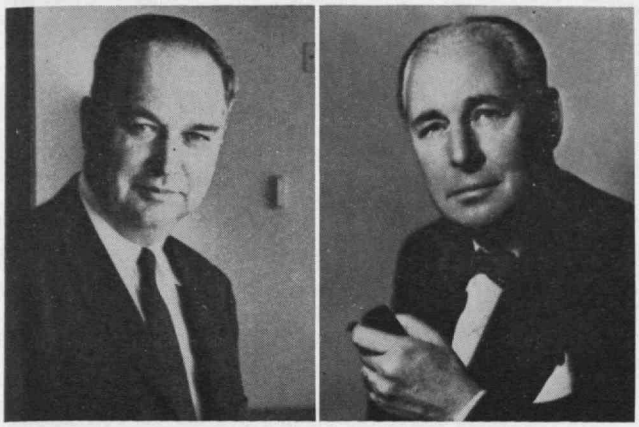
Communication's Potentialities

IN THE THIRD of the Lincoln Laboratory lectures, Lloyd V. Berkner, President of the Graduate Research Center of the Southwest, described both the benefits of fast, precise, and cheap communications and the problems that they pose.

As an example of the benefits, he noted how few fatalities there were in hurricane Carla compared to the thousand lives taken by a storm in Galveston in 1900. Meteorological satellites coupled to improved networks, he predicted, will result in more such gains.

As an example of the problems, he stressed the tendency of fast communications to encourage "tactical" decisions in which emotional responses may figure, rather than "strategic" decisions based on research, study, and carefully reasoned conclusions. Perhaps, he suggested, symbols can be found that will distinguish sharply between tactical and strategic decisions.

This century's most powerful and pervasive development in communications thus far, in Dr. Berkner's opinion, was the discovery and elaboration of information theory by Claude Shannon, '40, and M.I.T. men have been prominent in its utilization. Communication, the lecturer declared, is "at the root of civilized prog-



Ivan A. Getting, '33 Lloyd V. Berkner

ress," and our growing knowledge of the process eventually may enable the world's peoples both to convey images to each other more precisely and to evaluate alternatives more intelligently.

The Bill for Changing Cars

ACCORDING TO Franklin M. Fisher, Assistant Professor of Economics at M.I.T., and Professors Zvi Griliches of the University of Chicago and Carl Kaysen of Harvard, automobile model changes in recent years have been costing America about five billion dollars a year.

They reported this estimate at the American Economic Association's meeting this winter, asked whether the changes have been worth what they have cost, and said "everyone must judge for himself." Billions could have been saved, their research revealed, if advanced technologies had been used to build 1949 models throughout the 1950's rather than new models.

The economists did not distinguish between frills and beneficial improvements. They itemized only the differences in costs to the economy that resulted from (1) producing larger, heavier, more powerful cars, and optional equipment such as automatic transmissions and power brakes, (2) special retooling for new models, and (3) gasoline expenditures ascribable to the "horsepower race."

The increases in horsepower, length, and weight from 1956 to 1960, they estimated, added $454 to the cost per car; optional equipment added $116, advertising $14, and special retooling $99. In addition, they reported, owners of these cars are paying about $40 more per 10,000 miles of driving for gasoline than they would be if their cars had been built to 1949 specifications. But throughout this period, the economists wrote, it seems likely that the makers of cars were "giving the public what it wanted, save perhaps for overshooting in some respects."

Hence, they said, their findings were not necessarily an indictment of Detroit. "We are rather in the position of one who observes another man drinking various kinds of liquor," they explained. "We do not blame the bartender for anything save that he occasionally gives the man more than he asks for of some expensive drink; nor do we question the man's right to drink; nor do we distinguish between 'good' liquors and 'bad.' We do, however, present the bar bill. And indeed, the automobile-consuming public has been on quite a 'toot,' to judge from the size of the bill."

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SUPERFLUID PHYSICS

By CECIL T. LANE, Yale University. *International Series in Pure and Applied Physics.* Available February.

This text gives an up-to-date survey of research in the field of superfluidity. Aimed at acquainting newcomers to the field with the most important advances of the last 20 years, it embraces both superfluid helium and super-conductivity. The treatment is both theoretical and experimental; the level of mathematical treatment is elementary with the main emphasis on the physical principles involved.

ENGINEERING AS A CAREER, Second Edition

By RALPH J. SMITH, Stanford University. Available March.

This introductory orientation and problems text in engineering provides a comprehensive and factual picture of an engineer's duties, qualifications and training needed, and career opportunities available. The author explains the engineering profession in terms of functions as well as branches. New chapters include: "Adjustment to College" and "How To Be a Better Student." New examples, illustrations; material updated.

ELEMENTARY QUANTUM FIELD THEORY

By ERNEST M. HENLEY, University of Washington; and WALTER THIRRING, University of Vienna. *International Series in Pure and Applied Physics.* Available May.

Presents that part of quantum field theory not obscured by mathematical difficulties and not requiring a deeper understanding of special relativity. Applications to elementary particles are made. Develops the physical basis for field theory, with emphasis on conceptual aspects of the field; treats the interactions of a quantum field with various static sources; uses mathematical tools and physical insight developed in first two parts to discuss low energy pion physics in detail.

MECHANICS FOR ENGINEERS, Second Edition, Combined Volume

MECHANICS FOR ENGINEERS: Statics

MECHANICS FOR ENGINEERS: Dynamics

By FERDINAND P. BEER, Lehigh University; and E. RUSSELL JOHNSTON, JR., Worcester Polytechnic Institute. Available April.

This new second edition has been extensively revised to stress the concept of equivalent systems, to point out the vectorial character of forces, and to include approximately 25% more problems. Of the approximately 2200 problems, 80% are new. Solutions Manuals will be available.

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By GEORGE J. THALER, United States Naval Postgraduate School; and MARVIN P. PASTEL, Norair Division, Northrup Corporation. *McGraw-Hill Electrical and Electronic Engineering Series.* Just published.

This comprehensive and up-to-date text first develops the theory of basic mathematical tools and then shows how to apply these tools to the analysis and design of nonlinear systems. The final chapter discusses Liapunov's second method, serving both as an introduction to the topic and as preparation for further study. Includes carefully detailed illustrative examples.

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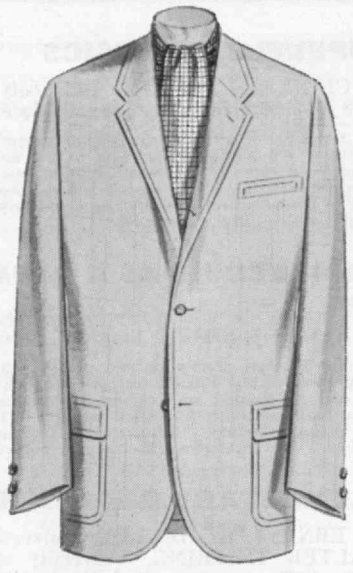
By STANLEY LIVINGSTON, Massachusetts Institute of Technology; and JOHN P. BLEWETT, Brookhaven National Laboratory. *International Series in Pure and Applied Physics.* 688 pages, $17.50.

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Feedback

(Concluded from page 3)

put new steel under it. We did this with two poles and chain falls so that the Glen Alden Coal Company could extend their culm bank another half mile. I was brought up in an industry where we expected to work Saturdays and Sundays and were on call around the clock.

One morning at 3:00 A.M. I had to get a gang out above Kingston and rout everybody out of bed because we ran the combination gas and electric company, and a mine cave-in in the ground pulled the gas main apart. I never knew so many people slept with their windows all shut, and the escaping gas would follow the soft earth along the water pipe as well as the gas pipes into somebody's basement.

An arc light fell down in Larksville and a drunk came out of a saloon about that time and tried to carry the light home with him. They buried him. We had to be careful what we threw away on the dump because a small boy unwound the wire on a small motor, tied a piece of iron to it, swung it around and sailed it over our 13,000-volt line. No, it did not electrocute him, but the end of the wire with the iron sailed over and down on another boy's head and electrocuted him. All of these things made us realize that we were working 24 hours in an industry which required eternal vigilance.

Mr. Baker's article certainly brings out the change that has occurred in the last 30 years. It is well worth reading.

Curtis Universal Joint Co., Inc.,
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Contributors, Please Note

FROM RUSSELL F. TRIMBLE, '48:

I enjoyed your article (December, 1961) on the distribution of Alumni among various companies, and wonder if you could further mine the Alumni Register for an article on how we are distributed (field, rank, school), in the academic world.

Southern Illinois University
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FUTURE Review features will include:

A Gamesworth of Thinking, by John R. Platt, Visiting Professor of Communication Sciences at M.I.T.—an excerpt from his new book, *The Excitement of Science.*

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Talk of Our Times

(Continued from page 26)

ties, and the spiritual needs of those not wholly satisfied by religions developed in times past.

The recognition of the existence of a nongenetic evolutionary system as distinct from that of the biogenetic, and mediated largely through cultural mechanisms, and institutions created by man rather than through genetic mechanisms, defines still another area to which some biologists have contributed and more can be expected to contribute in the future. Some see a need for an ethic and a philosophy based upon an understanding of the nature of man as a biological unit possessing not only a body but also those attributes referred to by such terms as mind, spirit, soul—all of which together function by reasoning based not upon intellectual analysis alone but also upon the operation of what is called intuition. Man's continued need for understanding the meaning of the different manifestations of life and for guiding his sense of responsibility in the evolutionary scheme is of such importance to him and to biology that an approach to philosophy from biologic reality creates a need for something that, for want of a better term, might be referred to tentatively as bio-philosophy.

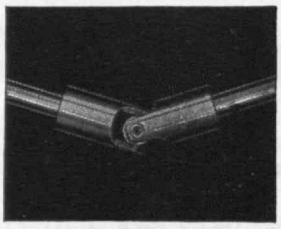
The blending and unification of the different elements of biology, as this area of knowledge is broadly interpreted here, is in essence an extension of the continuum from the sciences dealing with the physical universe, from which life arose, in which it exists, and from which it derives the energy without which it could not continue to exist. There are many scientists who bridge the distance between two or more disciplines. Many biologists are hybrids possessing interests and competences in the physical sciences and also sharing the feelings and methods of thought of humanists. What might happen if biologists and other scholars who were so oriented were to combine talents, to a still larger extent than is now done, not simply to develop further their own special interests individually but to develop their common interests together?

Scientists and other scholars have long realized, and are realizing more and more, their responsibility to society as well as to themselves. Practitioners of the art of science who intentionally or unintentionally are responsible for the prolongation of life feel a concomitant obligation to help make living worth while. They have the vision, imagination, and ingenuity to devise techniques that may be required to open minds to new possibilities for this purpose. However, the implementation of such ideas then becomes a social problem, and sometimes political.

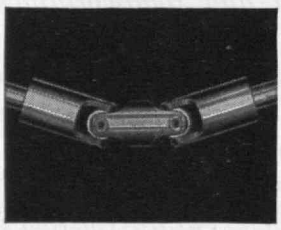
The limitation in more rapidly improving the human state generally is not a limitation in basic or technical knowledge but rather a limitation in social institutions with which to bring about such change. This limitation may be due in part to a lack of clarity of objectives, to a lack of desire, or to an unwillingness on the part of some to help those who need help to approach such a state; unfortunately, the motive to help seems too often to be stimulated by the prospect of reward in profit, prestige, or power.

(Concluded on page 46)

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Talk of Our Times

(Concluded from page 44)

The principal struggle in the world today is a competition in methods for achieving the utopian dream of freedom from want, freedom from fear, and freedom of opportunity for each individual to be able to fulfill the potential with which he was born. The means for accomplishing these ends, without clear understanding of what is required to do so, seem to involve the development of an educated population and, particularly, one educated to contribute in the competition in science and in the race into space. These are the present realities.

Man is in the strange position of being the inducer and regulator of change, and he is expected to direct and orient himself on a course for which he has no map. Men called scientists, whose activities are largely responsible for the direction and the force of change, and men called humanists who are concerned with the consequences thereof, are of the same culture of organisms; and there are some who possess the interests and concerns of both. How do they relate to one another, and what is the relationship of responsibilities which each possesses for the furtherance of the ends of their special interests and for whatever are the ends in the common interests that they share as members of the human race?

There have always been times of crisis—but never have they involved all of the people of the world at the same time. Never before has there been such competition to unify in one of only two camps and according to one of only two ideologies. The limitation in opportunity that this implies for experimentation in the future, without deliberate consideration and adequate understanding of what might be best from the viewpoint of the biologic nature of man, makes an analysis imperative, by approaches such as are used by biologists, of the forces at play upon man, both from within and from without.

Thus we can recognize the way in which biology can contribute to an understanding of the human problem. Man needs to be educated not for stability but for change.

Man's most persistent and difficult biological problem will not be his physical diseases, certainly not as in the past, but his relationship to himself and to his fellow man. Whether or not he will ultimately find all the answers is not relevant. What is important is that he establish a reasonable basis upon which to deal with this problem. Reasonably, this could be established on the basis of a concept of man, a philosophy, and an ethical code that derives from biology and from an acceptance of man as a biological unit in which body, mind, and spirit are one and are governed by biological laws. Our understanding in this area will grow. How this may come about is suggested by an idea expressed by Elizabeth Sewell, who has written of poetry and the natural sciences, and who says:

"The mind knows, in poems, a little more than it knows it knows. A poem will often tell the thinking mind where to look next."

Perhaps it will be from the poets of biology that a vision of the future will come.

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and the prophet replied:
"It is well to give when asked, but it is better to give unasked, through understanding." *

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The tale is told of Almustafa, the prophet, who, having awaited for many years the ship that would return him to the place from whence he came, was making the final descent to the shore when the folk of Orphalese crowded about him. They besought him before departing to "disclose us to ourselves, and tell us all that has been shown you of that which is between birth and death."

With words of wisdom, an answer appropriate was given to the woman holding a baby, to the ploughman, to the merchant. Begged one, "Speak to us of GIVING," and the prophet replied:

> "It is well to give when asked, but it better to give unasked, through understanding;
> And to the open-handed the search for one who shall receive is joy greater than giving. All you have shall some day be given;
> Therefore give now, that the season of giving may be yours and not your inheritors'."

Through the years the prophet's words have held true, for even today he who "through understanding" includes the MASSACHUSETTS INSTITUTE OF TECHNOLOGY as a beneficiary in his will can experience thereby a two-fold satisfaction. The successful culmination of his search for a worthy recipient and the anticipated results his generosity will assist in accomplishing. These satisfactions give an added value to the span of man's days and protect his usefulness to his fellowmen far into the future.

The Massachusetts Institute of Technology because of the high quality of the education given its students, its effective research work for aiding America in peace as well as in war, and the high character of its governing body and academic staff qualifies as an institution for serving our American ideals for the present and in the years to come.

But the search, the finding, and the anticipated accomplishments are not enough; for without the properly-worded record, man's plans for the future may go awry. Hence the prophet's importuning, "—give now," should be heeded. The giving need not be an immediate physical transaction, for written directions replace the spoken word when the speaker is no longer present, and a donor can frequently make by will a gift which is larger than he can make while living. Truly, *"it is well to give when asked, but it is better to give unasked, through understanding."*

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* The "Prophet" by Kahlil Gibran

Club News

Philippine Club Elects Victor Lim, '49, President

Last September, the Technology Club of the Philippines, after hibernating for several years, finally held its long-delayed meeting and election of officers for 1962. The following Alumni were elected: President, Victor A. Lim, '49; Vice-president, Gregorio Y. Zara, '26; Secretary-Treasurer, Miss Zenaida Gonzalez, '61; Assistant Secretary-Treasurer, Jose M. Reyes, '56.

The new officers planned a pre-Christmas party at the JUSMAG Officers' Club in Quezon City on December 8, with Jose Reyes in charge of arrangements.

On October 16, after attending a conference in Tokyo, Dr. Samuel A. Goldblith, '40, and his wife arrived in Manila for talks with Dr. Paulino Garcia, chairman of the National Science and Development Board of the Philippines. During his brief visit, Dr. Goldblith took time to fly to Baguio City to visit some Catholic nuns who had fed and befriended him while he was a prisoner of the Japanese in the wilds of Mountain Province, Philippines. Club members gave a luncheon in honor of the Goldbliths at the Selecta Restaurant on the Dewey Boulevard.

Professor Arthur T. Ippen of the Civil Engineering Department also was a recent visitor in Manila, and the guest of honor at a club luncheon at the Swiss Inn.—Ramon S. Sevilla, '39, Ex-Secretary, 2001 Taft Avenue, Pasay City, Philippine Islands.

South Florida Club Hears Thomas B. King

The M.I.T. Club of South Florida took advantage of National Alumni Night on October 19 to hold its first fall dinner meeting at the DuPont Plaza Hotel in Miami. Along with thousands of other Alumni throughout the country, members heard the telephoned "Voices of Technology" message.

Our guest speaker from the Institute was Professor Thomas B. King, who discussed new developments at M.I.T. The talk was so interesting that Professor King was later besieged with questions, the answers to which were just as informative as his talk.

Club members present were: James P. Barnes, '05, Thomas Spooner, '09, Kenneth P. Armstrong, '10, Vincent L. Gallagher, '12, Frederick D. Rich, '13, Morris N. Lipp, '20, E. Franklin Badger, '20, Edward I. Mandell, '21, Francis M. Kurtz, '22, Lloyd J. Porter, '24, Jack Platt, '34, Sidney Mank, '37, Irving Peskoe, '39, William Sussman, '40, Albert A. Conviser, '42, Gustavo A. Calleja, '43, Scott J. Hoehn, '47, Irving Steinhardt, '48, and Robert C. West, '57.—Irving Steinhardt, '48, Secretary, 804 Raymond Street, Miami Beach, Fla.

Robert Semple is Host To Detroit Club

About 100 members of the M.I.T. Club of Detroit and their wives were guests of Robert B. Semple, '32, President of the Wyandotte Chemicals Company, for cocktails and dinner at the Wabeek Dining Room in Wyandotte on November 15. Before dinner the group toured the Wyandotte research facilities. Staff members demonstrated processes for making urethane rubber and a plastic foam to compete with foam rubber. A method of determining the effectiveness of detergents by measuring radioactivity of material before and after washing was also especially interesting. At dinner, Phil Baker, '16, echoed the sentiments of the group by declaring the meeting one of the best in his 46 years of attending alumni meetings, and thanked Bob Semple for his hospitality.

A discussion of qualities a top executive looks for when selecting junior executives for promotion was led by Bob Semple, assisted by Jervis Webb, '37, President of the Jervis B. Webb Company, and George Baker (a Stanford alumnus), Vice-president of Wyandotte Chemicals. The members of the panel agreed that sincerity, intelligence and integrity were important factors in success. Mr. Webb thought that one of the most important aptitudes of a manager is the ability to assign responsibility, at the same time communicating to his subordinates the feeling that he would do the job himself if it weren't that he had a supervisory job to perform. The Wyandotte Company's method of employee evaluation was outlined by Mr. Baker, who endorsed the use of tests for measuring basic intelligence, but not for gauging personality traits. The topic aroused the interest of the group, and among those who joined in the discussion were Julius Rosenberg, '12, Everett Doten, '19, John Rumsey, '33, Ben Howes, '39, Charles Ricker, '42, Pat Colvan, '48, and Julian Greenebaum, '53.

At the end of the meeting, Joe Mestier, '43, announced that he was being transferred by his company and resigned as club president. The Board of Directors made the following appointments for the remainder of the year: Jim Mast, '53, President; Ernie Upton, '43, Program Vice-president, and C. E. Valentine, 3d, '57, Membership Vice-president. The March meeting will feature a tour and speaker at Ann Arbor.—Ella Gardner, '55 (Mrs. R. R. Gardner), Review Secretary, 1821 Villa, Birmingham, Mich.

Tulsa Club Officers Meet Professor Greeley

On November 28, Professor Roland B. Greeley, the Institute's Director of Admissions, was welcomed at Tulsa Airport by Bernard E. Groenewold, '25, President of the M.I.T. Club of Oklahoma.

After an afternoon tour of the town, Professor Greeley was the club's guest at a small dinner attended by all of the officers of the Oklahoma Club.—Bernard E. Groenewold, '25, 2819 East 26th Place, Tulsa, Okla.

San Francisco Club Awed By Elias' 'Black Box'

On October 19, National Alumni Night, members of the M.I.T. Club of Northern California enjoyed a fascinating talk by Professor Peter Elias, head of M.I.T.'s Department of Electrical Engineering.

Alumni were awed by Professor Elias' "black box." This little gadget, Professor Elias believes, is revolutionizing teaching methods. Students can work with it in their dormitory rooms to gather extra knowledge of circuitry.

Club President Royce Greatwood, '24, was happy to see Rear Admiral L. V. Honsinger, '32, Commandant of Mare Island Naval Shipyard at Vallejo, California, at this meeting.—Roger S. Borovoy, '56, Assistant Secretary-Treasurer, 30 Ord Court, San Francisco; Martin D. Robbins, '56, Secretary-Treasurer, 2707 Benvenue Avenue, Berkeley 5, Calif.

Rhode Island Club Plans Spring Program

Bill Barker, '32, newly elected President of the M.I.T. Club of Rhode Island, recently called an executive committee meeting to plan the spring program for 1962. At the meeting, Arthur Campopiano, '28, and Martin Billett, '48, were asked to plan a January visit to the new computer at Brown University. Art Verrier, '46, was selected to arrange the March meeting with a guest speaker from the Institute. The March meeting will probably be held at the TK Club in Pawtucket in order to be more easily accessible for our Attleboro, Lincoln and Woonsocket Alumni. Dr. E. J. (Spike) Staff, '35, and Bud Roberts, '46, will arrange the May meeting at the Newport Officers' Club, where the Fall River Club will be asked to join us.

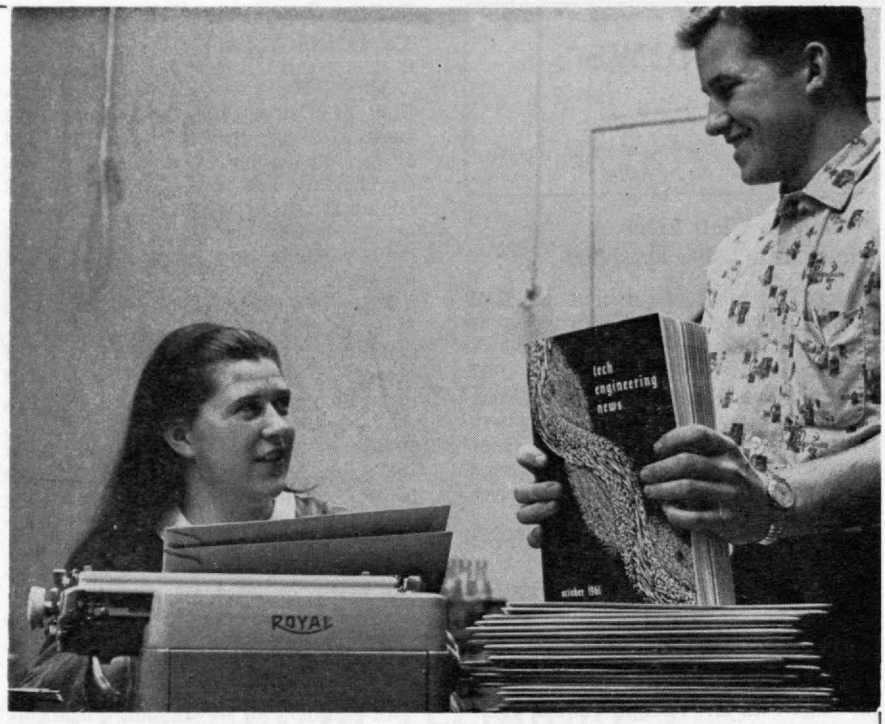
At an extended discussion by the executive committee, it was decided that the secretary would be asked to write a welcoming note to all local Alumni, which will include tentative plans for the three spring meetings.—S. Martin Billett, Secretary, 16 Greenwood Avenue, Barrington, R.I.

Los Angeles Meeting Attended by 184

The M.I.T. Club of Southern California held its Second Century Fund national meeting at the Nikabob Restaurant on October 19. The largest gathering of Alumni in many years was honored by the presence of John J. Wilson, '29, Chairman of the Second Century Fund, who had chosen Los Angeles for his participation in the ceremonies. The 184 Alumni and their guests also enjoyed an exciting talk by Professor Irwin W. Sizer.

Our 1962 Southern California Alumni Directory will be going to press soon, and the first copies should be available about the time of the printing of this issue of The Review.—Albert A. Levingston, '49, Secretary, 3850 Wilshire Boulevard, Los Angeles 5, California; Richard J. Steele, '46, Assistant Secretary, 15519 Talbot Drive, La Mirada, Calif.

Coed Edits Engineering News



Frances Dyro, '63, gives assignments to her brother, Joseph, '65.

THE 40-year-old undergraduate magazine, *Tech Engineering News,* is now being edited by one of M.I.T.'s 84 coeds, Frances Dyro, '63, of Portland, Maine.

Miss Dyro is keenly interested in bacteriology and hopes to specialize in space medicine. She has worked as a nurse's aide in the Maine Medical Center, as a technical editor in the M.I.T. Instrumentation Laboratory, and taken extra courses in physics. She also writes poetry, sings in the Chapel Choir, and as an active participant in Dramashop has had roles in *Volpone* and *Androcles and the Lion.* She studied ballet for eight years, but decided before entering M.I.T. that radiation biology interested her more. Both she and her brother, who is on the magazine's junior board of editors, have long found astronomy highly fascinating.

As an editor she has learned that "scientists take a special delight in checking up on your facts —they love to trip you up if they can."

Phoenix Club Is Host To Robley Evans

Twenty-four local Alumni, including three members of the Class of '06, attended an Alumni Luncheon held by the M.I.T. Club of Phoenix on November 9.

A list of members present at this luncheon follows: Harold C. Plummer, '06, Guy H. Ruggles, '06, Charles F. Willis, '06, Frank P. Knight, Jr., '23, Ira D. Chambers, '25, William F. Baker, '26, William Beard, '28, Major General Grandison Gardner, '28, USAF, ret., James G. Bowen, '30, Vice Admiral S. B. Spangler, '32, Dupuy F. Cayce, '33, Dom Martino, '33, Robert E. Jameson, '34, Earl L. Bimson, '43, Captain Archie P. Kelley, '46, Wilfred C. Gilbert, Jr., '47, Dirk de Vries, '50, Byron F. Burch, Jr., '51, S. B. Spangler, Jr., '51, Alex N. Pasztor, '53, Bruce Blanchard, '57, and Dan W. Scott, '60.

The meeting was planned as an informal visit with Dr. Robley Evans of M.I.T., who had been in Phoenix making faculty visits to local high schools. Dr. Evans gave the group a review of activities at M.I.T., including a brief discussion of work in nuclear physics. A short "question and answer" period followed.

Other matters discussed were the recruitment of Alumni for further Second Century Fund solicitation and future club meetings. It was decided to plan informal luncheons on the second Wednesday of each month at the Ranch House Inn in Phoenix, with lunch ordered directly from the menu, enabling members to control their own expenses. Visitors to Phoenix from the Institute will be asked to join.

The first such regular round-table luncheon was held on Wednesday, December 13, with a gratifying attendance. A list of those present follows: Harold C. Plummer, Guy H. Ruggles, James Bowen, S. B. Spangler, Dom Martino, Earl L. Bimson, Jim Hoagland, '45, A. E. Ferguson, '48, John Meeker, '52, Bruce Blanchard, and Dan W. Scott. Gordon Simpkins, of San Francisco, Second Century Fund District Director, was a guest of the club.—E. L. Bimson (in the absence of Dupe Cayce, Secretary), Valley National Bank, Phoenix, Ariz.

Long Island Club Schedules Year's Events

On Friday evening, January 19, the M.I.T. Club of Long Island held a dinner meeting at Patricia Murphy's Candlelight Restaurant, Manhasset. The guest speaker, Professor Robert C. Wood of M.I.T., discussed "What the Next Ten Years Have in Store for Long Island." Professor Wood is the author of "1400 Governments" (a survey of regional planning in the greater New York area), and also "Suburbia and Its Problems." Bill Terry, '43, and Ken Lish, '40, were event chairmen.

On Saturday evening, March 17 (Saint Patrick's Day), the Long Island Alumni will venture into Manhattan's Chinatown for a feast featuring specially prepared exotic Chinese dishes. Event Chairmen Jimmie Chin, '56, and Ollie Hoag, '35, are planning an unusual and entertaining program, assisted by a local travel agency.—Theodore W. Henning, '46, Secretary, 24 Madison Park Gardens, Port Washington, Long Island.

Chicago Club Visits IBM Data Center

Over 100 Alumni attended "Voices of Technology" night on October 19 at the Merchants' and Manufacturers' Club in Chicago's Merchandise Mart. Without question the "long distance" program was very moving, and the group listened in rapt attention. Subsequently, Dean Emeritus E. Penn Brooks, '17, a great Chicagoan and former President of our Club, spoke on "The School of Industrial Management At Home and Overseas." Greg Smith, '30, of Boston, concluded the meeting with an outline of the needs and progress of the Second Century Fund.

On December 12, 85 Alumni again braved Chicago's winter winds for a dinner at the Western Society of Engineers, and an evening at IBM's Data Center nearby. After a review of such fundamentals as punched cards, paper and magnetic tape, and magnetic "core" storage systems, we visited the newest machines (1620, 1401, and 7074) in operation. Afterwards we discussed applications of the systems and their principles of operation. It was a truly exciting and informative evening.—Warren J. Meyers, '41, Secretary, 4220 W. Belmont Avenue, Chicago 41, Ill.

Class News

'95

If anyone in our class did not receive our December "Eighty-Plus Club, Bulletin No. 2," with circulation limited to '95 members, we will be glad to forward one on receipt of his or her present address, as none has been returned by the Post Office to us.—**Andrew D. Fuller,** Assistant Secretary, 120 Tremont St., Boston, Mass.

'96

Cards have been received by the secretary expressing greetings and best wishes for the holiday season to the class, from Mrs. Rockwell, Harold Boardman, Bill Coolidge, Richard Elliot, Guy Morrill and Fred Owen; Dorothy **Coolidge,** who was at our reunions in 1936 and 1941, was a co-signer with **Will. Charles Hyde** writes that he spent October, as usual, in Washington with his daughter; he would appreciate receiving a copy of the Class of '96 Portfolio. There are two extra copies of the 45-Year History of '96 at this office, which may be had by anyone interested in them. . . . **Harold W. DeLong,** XIII, died October 31, 1961, in Bath, Maine. After leaving the Iron Works, he engaged in construction until he retired in 1954. His survivors are his wife, Victoria Hennessy DeLong, and two sons, Edward of Wayne, Pa., and Henry B., captain, U.S.N. . . . **George Harkness** is at Orlando, Fla., for the winter; his wife, Virginia, died in October in Dorchester. A delayed note of class sympathy has been sent to Harkness. . . . Cards were sent to all 45 members of the class extending seasons greetings. Perhaps the card will remind some members that an occasional brief note might help to keep a place for '96 notes in The Review.—**James M. Driscoll,** Secretary, 129 Walnut Street, Brookline Mass.; **Henry R. Hedge,** Assistant Secretary, 105 Rockwood Street, Brookline, Mass.

'97

At the present our roll of survivors totals 42, but as far as we can determine, less than one-half of these show active interest in class affairs. Of the remainder the majority are inarticulate. An instance of unusual interest, however, was the fact that the widow of **Henry Loomis** continued his subscription to the Alumni Fund for this year. . . . How is the class doing, we wonder, on great-grandchildren? It became a matter of pride for us when our first, a great-grandson, arrived three months ago. May we not expect some letters from you on this subject? No doubt **Irenée** holds the record, for unless we are mistaken, he reported several great-grandchildren a few years ago. . . . Through Judge Charles Dunn we have learned the sad news of the death of Mrs. Irenée DuPont on November 28 at her home near Wilmington, Del., after a long illness, at 84.

Without news from you we are reduced to nostalgic references to early class meetings. . . . Our fourth class meeting was held October 20, 1893, under the temporary chairmanship of **R. F. Hosford.** The constitution was read, and it was voted to accept it and have it written out by **Frederick N. Le Baron,** with space at the bottom for all class members to sign. A committee of five was appointed to recommend a class cheer. Appointed were John A. Collins, Jr., William T. Parker, George Lane, Wilfred Bancroft and Arthur Curtis. . . . On November 1, 1893, at our fifth class meeting a class cheer was selected. It was also voted that the secretary place on the list of nominations for class officers all names submitted before 1:00 P.M., November 2. In addition, a committee of five was appointed to make arrangements for the cane rush, and the chairman appointed. Harry W. Allen, William T. Parker, Hayden, David J. Spence and George Lane. Lincoln Crocker and Joseph Bancroft were chosen as tellers for the election. Officers to serve until February, 1894, were elected on November 4, 1893. The ballot box was open from 8:45 A.M. to 12:30 P.M. The following were elected: **Franklin E. Bragg,** President; **Wilfred Bancroft,** First Vice-president; **Edgar L. Barkhouse,** Second Vice-president; **George M. Lane,** Secretary; **Dwight Clark,** Treasurer; **Dwight Spence** and **Harry W. Allen,** Members of the Executive Board. . . . The sixth meeting of the class was held on November 11; the results of the election were announced and the several officers were installed. **John P. Iisley, Jr.** was elected the class representative to the Athletic Association. And by a unanimous vote an assessment of 25 cents per head was levied.

I would appreciate your comments as to whether these extracts of early class meetings are of sufficient interest to warrant their continuance. Thus you have two items about which I trust you silent classmates will write, adding plenty of news about yourself or any other classmate you have seen.—**John P. Iisley,** Secretary-Treasurer, 26 Columbine Road, Milton 87, Mass.; **Jere R. Daniell,** Assistant Secretary, R.F.D., West Franklin, N.H.

'98

As promised last month, we are including in this issue data about the 65th Reunion of the class which the officers of the class have collected. We will start with a quotation from a letter received from the president of the class, **Dan Edgerly.** "The question one-day or two-day gathering is presented. (A) One Day: Alumni Day luncheon with a dinner in the evening or Alumni Day luncheon and a class gathering in the balance of the afternoon. (B) Two Days: Alumni Day luncheon (perhaps going to Pops concert in the evening); Second Day, a luncheon at some hotel. In both cases, it will mean staying at a hotel overnight for some of us. Also, we have the wives to consider." It will be remembered that many of the class with friends, some 125 in all, attended the celebrated Pops concert on the occasion of our 50th Reunion. Prior to the concert, **George Cottle** and **Ed Chapin** called on conductor Arthur Fiedler, and arranged with him for an unusually fine concert. And how we enjoyed that get-together and concert!

Last Friday afternoon, following Dan's provocative suggestion, the secretary, after attending a regular Friday afternoon concert of the Boston Symphony Orchestra, hunted up our old friends in the executive department at Symphony Hall to inquire concerning the feasibility of '98 again having a special section for a Pops' Concert during our 65th Reunion. We were received very cordially, and assured that it could be arranged. So, those of you who have or have not heard the celebrated Boston Pops Orchestra under the baton of Arthur Fiedler, what do you think of the suggestion? Just continue your cogitation on the subject of our 65th Reunion, and drop us a line.

Besides the Boston Pops which you may wish to hear for the first time or again, before you pass on, there are other organizations and historical associations that could be included in a 65th! The M.I.T. which we attended over on Boylston Street, Boston, could be dropped into the extensive Institute which has grown up in Cambridge. By June, 1963, many of the new SCF buildings will be started or finished, and you would have hard work to find the modest institute we attended in 1894-1898. And, of course, Boston is associated with the early history of our country. How many times have you recited the Longfellow poem, "One if by land, and two if by sea, And I on the opposite shore will be, ready to ride and spread the alarm" or have quoted the Emerson line, "the shot heard around the world"? Well, it so happens that your secretary was chairman of a committee at a convention held in Boston some 10 years ago, which arranged, among other social activities, a trip to Lexington and Concord. One of the lanterns above spoken about can be still seen at a museum in Concord, Mass.; and the bridge at Concord has been recently rebuilt, so that the battle seems very real there. Such a trip to Lexington and Concord could easily be combined with a motor trip through M.I.T. So what do you say to that? By the way, don't wait to reply. Although, the 65th is one and a-half years away, before you know it, June, 1963, will be at hand. Also we must make reservations way ahead. So don't wait too long! This will probably be our last chance to get together for a real celebration.

However, don't get too excited! Listen to this letter from **Dave Fenner** to **Dan Edgerly.** Dave, as you know, graduated from Sheffield Scientific in 1896, and then came to M.I.T. to join and graduate with our glorious Class of '98. Dave is presi-

dent of his Sheffield Class. "Falmouth, July 8, 1961. Dear Dan: Have Class Letter #26, also your personal card and am greatly pleased! Managed to get to my 65th at New Haven. In 1896 we graduated 158; in 1961 at our 65th Reunion only 5 returned, but we had a fine collection of wheelchairs, crutches, canes and what have you. Here's hoping to see you in Cambridge in 1963. Dave Fenner." Dave is in fine health, as I can testify from seeing him recently. Many of our class are still robust. Then, as Dan remarked, ". . . there are the wives." So it seems quite feasible for us to run quite a reunion in Cambridge in 1963. What do you think? And what can you add to these random remarks?

Next month, March, 1962, the assistant secretary, Fred Jones, will send along quite a bit of Class News, which has gradually accumulated while Dan, Fred, and yours truly have been discussing by letters and personal get-togethers, the 65th Reunion of the class. The passing of **Lester, George Treat** and **George Cottle,** on whom we relied for our precious reunions, makes it urgent for those of us who remain to get together and reorganize for the future.—**Edward S. Chapin,** Secretary, 271 Dartmouth Street, Boston 16, Mass.; **Frederic A. Jones,** Assistant Secretary, 286 Chestnut Hill Avenue, Brighton 35, Mass.

'99

Ralph Howard Pinkham died December 1, 1961. After his graduation as a civil engineer, specializing in bridge construction, he was active with the Pennsylvania Railroad Company until his resignation in 1947. Ralph and Mrs. Pinkham enjoyed the meeting of the 60th Class Reunion.—**Percy W. Witherell,** Secretary, 84 Prince Street, Jamaica Plain, Mass.

'00

We were unable to obtain any class news for the last two numbers of The Review, but perhaps for us "no news is good news," for at least there were no deaths to record. This month there are two. **Rudolph J. Clausen** has been reported as having died, but the date is not known. He entered the Institute with the Class of 1899 but was graduated from Course IV in 1900 and has affiliated with us. He was an architect in Davenport, Iowa, all of his active life and his latest address was in that city. . . . **George B. Moody** died November 18, 1961. A native of Bangor, Maine, he entered the Institute with our class and was graduated with us from Course XIII. He spent 44 years in the shipbuilding industry, mostly in the drafting room at the plants of the Newport News Shipbuilding Company, the Bath Iron Works and the Portsmouth Navy Yard. His work notably covered the mathematical and technical phases of submarine design, probably as difficult and complicated as any in the whole engineering field. Since his retirement he had lived in Portsmouth, N. H.—**Elbert G. Allen,** Secretary, 11 Richfield Road, West Newton, Mass.

'02

Word has been received from the Alumni Office of the death of **Houghton Sawyer,** Course IV, on October 30, 1961. Our class records contain little information except that he made his home in Piedmont, Calif., and followed his profession in San Francisco. . . . We also have to report the death of **Robert S. Williams,** Professor Emeritus at M.I.T., on December 11, 1961, after a long period of invalidism which prevented him from participating in any outside activities although his interest continued. In a recent note he wrote, "Bob Williams will not be able to suggest any spot for the 60th, but sends greetings to you all. He did get to the country for part of the summer but is far from well." It is presumed that he got up to Francestown, N.H., to their summer home. Williams was born in Hartford, Conn., July 11, 1880, but when he entered M.I.T. he was living in Jackson, Mich.; he prepared at the Jackson High. Upon being graduated from M.I.T., he remained as an assistant in analytical chemistry for three years. In 1905 he was promoted to instructor and in the fall of that year matriculated in Goettingen University in Goettingen, Germany. He received the doctor's degree in July, 1907, and returned to the Institute. In 1911 he became assistant professor of analytical chemistry and was later advanced to associate professor of analytical chemistry and metallography. He became head of the New Department of Metallurgy in 1937 and with the years became a recognized authority in that field. His services were sought by the government in both world wars.

Dr. Compton appointed him deputy dean of engineering in 1942 and in 1945 dean of Army and Navy students. Upon reaching the age of retirement in 1946, he became emeritus professor and honorary lecturer in his department. Later as a member of the American Mission to Japan on Engineering Education in 1951, he spent two months in that country, covering it from end to end on his mission. Williams was a member of many scientific and professional societies and very active in the local section of the American Chemical Society. He was also active in our class affairs and served as president for two years besides being ready at all times to lend a helping hand. He is survived by his wife, Bertha Downes Williams, a son, Robert, and a sister, Anne Williams. . . . Plans for our 60th Reunion are progressing, and by the time this is read will be nearly completed.—**Burton G. Philbrick,** Secretary, 18 Ocean Avenue, Salem, Mass.

Happy Birthday

Congratulations are due in February for an alumnus due to celebrate his 90th anniversary; and to 6 and 7 Alumni about to turn, respectively, 85 and 80, as listed below with dates of birth.

February, 1872—Robert D. Farquhar, '95, on the 23rd.

February, 1877—Lewis W. Riddle, '99, on the 3rd; Raymond E. Farwell, '00, on the 6th; Emma E. Ferris, '01, and George O. Steinwedell, '99, on the 9th; Hambleton Welbourn, '00, on the 10th; and Stanley C. Sears, '01, on the 20th.

February, 1882—Harry H. Needham, '04, on the 3rd; Herbert Callman, '06, on the 8th; Frederick C. Lutze, '06, on the 14th; Louis B. Tuckerman, '06, on the 19th; Carl Brewer, '07, on the 25th; Frederic A. Olmsted, '03, on the 27th; and Ichabod F. Atwood, '03, on the 28th.

'03

We have received word from the Review Office that they like to receive our "intriguing" news early. What a wonderful stimulus could be applied to your secretary by sending him a few personal notes about your interesting past or present activities. Our still-large class seems to be cheerfully resting in retired composure. . . . We congratulate our energetic **Ichabod F. Atwood,** II, on his successful reappointment to the M.I.T. Alumni Council for the coming term. Ike is very active in a dual role—owner, Wood and Paper Box Factory and president, Chelsea Savings Bank. . . . **Andrew H. Hepburn,** IV, joined us at last spring's commencement exercises; he is still active in his architectural firm working on buildings for an expanding local college. . . . Your secretary spent a pleasant Thanksgiving visit with his son, John, Jr., at his farm home in Louisville, Ky. He is a development engineer in the Research Department of America Standard Products.

Walter R. MacCornack, IV, retired dean of the Architecture School of M.I.T. and one of the designers of the Boston Museum of Fine Arts, died in Littleton Hospital, November 6, 1961. He was 84. Dean MacCornack had made his home in Sugar Hill, N.H., for the last five years, coming here from Cleveland, Ohio. A consulting architect, he was a fellow of the American Institute of Architects and an honorary member of the Royal Institute of British Architects. He was also a lecturer at Yale, the University of Washington, the University of Chicago, and Western Reserve. He was born in Oneida, Ill., and attended the Knox Academy and Knox College, receiving his S.B. degree from M.I.T. in 1903.

In 1925, as a member of the Cleveland Board of Education, he helped direct its $40 million school building program. He was also architect for the Southern School Building and Industrial College program of the Julius Rosenwald Fund. Dean MacCornack, after being associated with the Boston Museum, was engaged by the Worcester Museum of Art. He designed many of the buildings on the Phillips Andover Academy campus and other school

and college buildings in Illinois, Ohio, Virginia, Kentucky and Connecticut. He was appointed dean of the M.I.T. School of Architecture in 1939, retiring in 1944. Among other noted buildings he designed are the Minneapolis Museum of Fine Arts, Severance Hall in Cleveland, the New York City Court House and the Piping Rock Club of Long Island, N.Y. He was the originator of Cleveland Homes, Inc., a slum clearance program which became the first federal housing project in that city. He served on the Civic Development Committee of the United States Chamber of Commerce and at one time was a member of the Housing Committee of Massachusetts.

He leaves a wife, Lillian (Amsden); a son, Donald A., of Long Island; a brother, **Clyde,** '03, of Phoenixville, Pa.; and three grandchildren.—**John J. A. Nolan,** Secretary, 13 Linden Avenue, Somerville, Mass.; **Augustus H. Eustis,** Treasurer, 131 State Street, Boston, Mass.

'04

The day after sending in the notes for the January number of The Review we had a nice letter from **Harry Rollins.** We reported in the November notes that Harry and Glendora were touring Europe. The recent letter reports that they are now safely home, which we were glad to hear. The following is quoted from the most recent letter: "My grandfather, Richard, born in 1801, resided in Lebanon, Maine, where my father was born in 1841, so our branch of the family did not migrate more than 20 miles from Bloody Point. In 1856, Grandfather Rollins, his daughter Sarah and my father left Lebanon to make their home in Des Moines, Iowa, where I was born. No wonder I like baked beans, codfish gravy and love that little section of New Hampshire and Maine where we spent so many summers before I came to Tech in 1900. Our plan to visit it again last summer was postponed because of the opportunity to tour France with our oldest daughter, Victoria, and other friends. Our daughter, Glendora, and her family drove the new car out from Philadelphia and were with us for three weeks before we left. We were away seven weeks; by flying both ways by jet, we had over six weeks in France with a three-day layover in Bronxville on our return. They had delayed the arrival of our new grandson until September 19, our wedding anniversary. Good planning I'd say. Erick Rollins Steen's arrival gives us a 'bakers dozen' grandchildren. We travelled over 4,800 miles in France in chauffeur driven cars and pretty well covered France except for the northwest part. For the fun of it, we went to Andorra, the 160-square-mile republic between France and Spain. We had a most pleasant and unexpected surprise family reunion upon our return to Paris. Our grandson, Harry M. Rollins, 3rd, who had completed his two years service in Okinawa as a lieutenant in the Marine Corps, was on his way home via the Suez Canal and arrived in Paris with his father Harry M. Rollins, 2nd, the same day we did. This made a reunion of five comprising three generations. Glendora and I feel that we had a happy and unusual vacation of which we will always have pleasant memories; but, as usual, we are delighted to be back home."

Those of you who read our notes in the November Review may recall the item supplied by Fred Goldthwait, '05, stating that his summer neighbor, Miss Pritchett, recalled that a delegation from our class called at the home of her father, Henry S. Pritchett, on Bay State Road and presented him with a loving cup. Now ariseth one **L. H. G. Bouscaren,** our efficient class agent for the Alumni Fund, and states that this recollection is not quite accurate. The version supplied by Gus is as follows: "I dislike having one of my few moments of glory forgotten by my contemporaries. Read this enclosed report alleging that Ida Pritchett recalls our class committee delivering the '04 loving cup to her father at his residence on Bay State Road. I can produce 99 witnesses besides yourself who saw yours truly pull the big loving cup from under a table and present it to Henry S. with some noble words. That took place in Huntington Hall on Class Day, June, 1904. As far as I know Henry S. lugged the cup home to Bay State Road that evening and Miss Ida saw it then. So Carle, please see to it that these slanderous charges are nailed to the mast. We must insist on historical events being reported accurately." Accuracy is a tender subject with editors of all degrees, but Gus speaks with considerable authority and although completely forgotten (apologies to Gus), his statement stirs long slumbering recollections of this historical event; so although it may seem unchivalrous to impugn the accuracy of the story as it came to us, we have no choice but to accept the version given by Gus. A further item supplied in his letter: "The news here is that Jim Killian, '26, has pinned on your class agent the title of honorary Chicago chairman of the Second Century Fund. After completing my 50-year turn with Stone and Webster I have reeled off my first 5 years with 'Market Facts.' My friends refer to me as a senior, not yet a senile."—**Carle R. Hayward,** Secretary, Room 35-304, M.I.T., Cambridge, Mass.; **Eugene Russell, Jr.,** Treasurer, 82 Devonshire Street, Boston, Mass.

'05

Business seems to be better—I mean class notes business. Last month I didn't have a word of news; this month a bit more. I wish I had a few more correspondents like **Willard E. Simpson.** About every three months I receive a three- or four-page letter, newsy and chummy, but I have to condense it or I might have words with the editor. This part will be interesting to some of you. "I've been very active in Masonry and I am still. I am attending a meeting of my commandery tonight where I am past commander, to help select the captain of our drill team for next year. I have been a member of the Commandery since 1922, and have drilled on our drill team since 1922, without a single year lost. I'm still drilling on it. I've been captain of the drill team for five years, 'way back. So I have been very much in Masonry and certainly have enjoyed it. I am a sponsor of our Symphony Society and enjoy the wonderful music given by our orchestra, which is conducted by a natural born Texan." . . . **Roy F. Lovejoy,** IX, who seems to be recuperating slowly from an operation

Deceased

CHARLES H. JOHNSON, '93, Oct. 6, 1960
HAROLD W. DELONG, '96, Oct. 31*
HENRY M. LOOMIS, '97, Aug. 17
RALPH H. PINKHAM, '99, Dec. 1*
RUDOLPH J. CLAUSEN, '00*
GEORGE B. MOODY, '00, Nov. 18*
DOUGLAS C. JILLSON, '01, Feb. 4
ARCHIBALD H. EHLE, '02, Aug.
HOUGHTON SAWYER, '02, Oct. 30*
ROBERT S. WILLIAMS, '02, Dec. 11*
WALTER R. MACCORNACK, '03, Nov. 6*
BERNARD BEERMAN, '05, May 21*
WILLIAM J. DEAVITT, '06, Aug. 26*
GEORGE T. GAMBRILL, JR., '07, Sept. 3*
EDWARD H. MARSH, '07, Dec. 6
THOMAS B. OWINGS, '08, June 8*
MASON T. WHITING, '08, Dec. 9*
WILLIS R. FRANCE, '10, Nov. 9
JOHN E. DUNPHY, '11, Aug. 30, 1960
EDGAR H. SMITH, '13, Oct. 29*
EDGAR MENDERSON, '13, Sept. 30*
RUPEN EKSERGIAN, '14, Nov. 30*
KENDALL P. FOSTER, '15, Nov. 7*
EARL F. ENRIGHT, '17, July 17
FRANCIS O. L. KILLORIN, '17, Nov. 23, 1960
HAROLD S. MARTIN, '17, Nov. 26
MAURICE A. REIDY, '18, Nov. 19*
WILLIAM J. HAGAN, JR., '19, Sept. 29*
HARRY H. MARDOIAN, '19, Sept. 12
FREDERICK G. C. SMITH, JR., '19, Oct. 20*
CHARLES V. BRIGGS, '21, Nov. 21*
TRISTRAM J. CAMPBELL, '21, Dec. 11
FRANCIS A. GUFFEY, '21, March 7*
THOMAS F. MURPHY, '21, Dec. 7*
CARL J. A. STENHOLM, '21, May 19*
ROBERT L. ALBERT, '22*
HUGH ELLIOTT, '22, Sept.*
THOMAS F. SHEERAN, '22, Aug. 31
M. ALFRED ULBRICH, '22, Sept. 16*
MATTHEW H. CONNORS, '23, Oct. 18*
FRANKLIN K. HAVEN, '23, Nov. 16*
BURNETT R. OLMSTED, '23, Aug. 31*
SUTRA PALASIRI, '23, Oct. 9*
EJNAR I. WOLF, '23, Aug. 30, 1960*
PAUL C. HEDENSTAD, '24, Oct. 12*
H. H. ABDUL RAZZACK, '24, Dec. 6*
HENRY R. BODELL, '25, Nov. 5*
E. BRADFORD NICHOLS, '25, May 12*
FRED D. WATERMAN, JR., '25, Nov. 5*
JOHN P. LUBY, '28, Feb. 10*
CLEON J. GENTZKOW, '29, April 8
CARL G. SCHESCH, '29, Oct. 25
JESSE W. BILLINGS, '30, Oct. 5
DANIEL M. DAVIS, '33, Sept. 6, 1960*
STANLEY SAPERY, '33, Nov. 23*
SAMUEL J. LORING, '36, Nov. 5
EDWIN C. PERKINS, '43, June 1
RICHARD W. JOHNSTON, '47, Nov. 17

*Further information in Class News.

in 1960, invites company as follows: "I wish some of our classmates would stop by if they are going through Lowell. We are now really right on the map for people going into New Hampshire from Boston on Route 3, which connects with the New Hampshire turnpike, as you know, and that passes within a few blocks of our home. I would like to have any of the boys stop off as they are driving through because I miss them and being tied down in activities requiring physical effort. I am glad to receive visitors, but I don't want to go visiting." In response to several rather rude suggestions, I have now this outburst from **Percy A. Goodale,** VI, "My golf was used up in mowing lawn on Cape until last of July when I sprained my ankle by falling into a hole and was laid up for three weeks, so could not play in Father and Sons Golf Tournament as I have done for 41 years without a break or (sprain). I am now at 80 Federal Street, Boston, with my son, Robert. Life begins for me January, 1963 at 80. I got A in English freshman year at M.I.T. The exam question: "Write in few words what you learned your first year at M.I.T.' My answer: 'How little I knew.' I have three sons and nine grandchildren." That is a remarkable record. I have read regularly each summer about Percy playing in the Father and Son Golf Tournament (either with a son or grandson or both) for 41 years.

Hallet R. Robbins, I, has also become a good correspondent. He sends me his Christmas Newsletter, from which I quote: "I have tentatively decided to remain at Desert Crest, instead of returning to Hawaii when Pohai Nani is ready for occupancy, probably two or three years hence. I like Arizona and Phoenix better than I did at first. In the Phoenix area, there is truly an amazing abundance and variety of cultural, educational, entertainment and recreational facilities, events and opportunities. The residential facilities offered to retired persons at the various establishmnets (of which Desert Crest is one) operated by Pacific Homes Corporation of Los Angeles, are quite different from the popular conception of an 'Old Folks Home.' Rather the atmosphere is that of a quiet resort hotel, and there are no more rules, regulations and restrictions than would be found at such a hotel. The Dons Club is a non-profit civic organization of 50 young business and professional men and their wives. They sponsor about 15 personally conducted tours, usually with two to five chartered buses, each winter season, to various points of scenic, historic and general interest in Arizona and adjoining states. Each bus carries two of the Dons and their ladies, dressed in colorful Spanish costumes, who maintain a running commentary on the territory traversed. I have joined a small private dancing class, and I find I enjoy dancing as much as I ever did. We joined with another group of pupils of the same teacher and put on a little exhibition for Desert Crest members which went very well, and we received many compliments. Square dancing is extremely popular in Arizona, where the traditions and atmosphere of the Old West are still strong. Our group has been doing square and round dances and mixers. My health has been good and I have regained 4 of the 14 pounds I lost last year. I had a very thorough check-up at the Scripps Clinic in May, and another more limited but adequate one here just recently at the Good Samaritan Hospital. I have been elected treasurer and ex-officio member of the executive committee of the Desert Crest Club, the members' organization for social and recreational activities and liaison with the management. I wish you a very Merry Christmas and Happy New Year—as they say in Hawaii, "Mele Kalikimaka, Hauoli Makahiki Hou!"

Andy Fisher, X, has been helping me out as a news gatherer, with these results. **Louis J. Kellion,** I, is apparently well and happy and full of pep (remember his old pep?), living with his sister. . . . **Frank M. Carhart,** I, is still on the job at his office, as is **Herman T. Gammons,** II, who rises at 5:45 each morning, has breakfast and leaves for the office at 7. He has three children and nine grandchildren. . . . **Leslie Clough,** II, is living alone in Weymouth, Mass.; he has three sons, ten grandchildren and three great-grandchildren. A Christmas card received from the **Edward Barriers,** V, very early tells me that they will be at 318 North Washington Drive, St. Armanda, Sarasota, Fla., this winter. . . . There are two deaths to report. **Bernard Beerman,** III, of Boston and Chelsea, died on May 21, 1961. . . . **Fletcher H. Burke,** II, passed away in Coral Gables, Fla., on July 22, 1961. No further details are available at this writing.—**Fred W. Goldthwait,** Secretary and Treasurer, Center Sandwich, N.H.; **Gilbert S. Tower,** Assistant Secretary and Treasurer, 35 North Main Street, Cohasset, Mass.

'06

From somewhere among my archives there recently came to light a reprint of a forward-looking article in The Review, Vol. 32, No. 7, of May, 1930. Entitled "An Adequate Student Union—The Limitations of Walker Memorial and Plans for its Enlargement," the article was based on a report prepared by a committee of undergraduates and the suggestions made by a previous committee in 1923. The foreword, by the late Dr. Allan W. Rowe, '01 was in his inimitable style and painted a vivid picture of the trials and tribulations of the students, and Alumni, who perforce inhabited it, or used it. That factual study included basement, first, and second floor plans and an exterior rendering of a completely altered and enlarged Walker, but for some reason it withered on the vine. Now after these many years we can hope that among the SCF expansion plans there may be one to alleviate the Walker situation in some respects.

In the January notes you were told of the award of the Charles Alvin Emerson Medal to **Samuel A. Greeley,** XI, at the 34th annual meeting of the Water Pollution Control Federation. Early in December lightning struck again when he was awarded an honorary membership in the Chicago Engineers Club. Before he concluded his remarks by repeating his thanks for the honor bestowed on him, Sam made this significant observation: "This club and its house are honorable and are becoming ancient. In age I think it yields only to New York and is thus an important instrument in the affairs of our country and in the great conflict dubbed the Cold War. We are something the Soviets are very much wanting to have. As government becomes more and more centralized in Washington, the citizen engineer becomes ever more important to the soundness of the nation. An informed and experienced citizenry is vital to curb and steer the multiple activities of centralized government." Sam Greeley's career was covered in some detail in the Class Notes in the December, 1960, Review. . . . As suggested in the January class notes, perhaps some of the Florida "winter visitors" have had or will have a meeting with some of the "natives." **Burton** and Marie **Kendall** expected to be staying at Ridge Manor Lodge in Lake Wales during January and part of February; **A.B.** and Sadie **Sherman** probably are at 5144 Gulf of Mexico Drive in Sarasota again; **Frank Benham** has been at Daytona Beach for several months; and who else? Where? . . . After a sojurn at their summer place in the White Mountains, **Jack** and Margaret **Norton** returned to Tryon, N.C., in August and bought a small, new, all-electric house there. Jack says: "The autumn has been spent vainly trying to fit our too many household goods into too small a space." When the time comes, will Marion and I have that problem, too!

Regretfully we have a death to report. **William Jefferson Deavitt,** III, died on August 26, 1961, in the town where he grew up, Montpelier, Vt. The report of his passing came from Mrs. Deavitt, née Marion Young, whom he married in El Paso on February 9, 1916. He was born in Montpelier, October 2, 1883, and after high school there, obtained his A.B. at Williams College and joined our class junior year, being on the basketball team and a member of the Mining Engineering Society. His thesis was "Comparison of Wet and Dry Methods of Assaying Copper Products for Gold and Silver," with **J. A. Root.** Bill Deavitt's career has been entirely in his chosen profession—mining. After graduation he was in Ontario with the Canadian Copper Company and then in Michigan with Munro Iron Mining Company. For 20 years from 1907, he was in the employ of American Smelting and Refining Company as superintendent of several mines in Mexico, at their Santa Barbara, Veta Grande, Santa Eulalia, and Parral units. During this period he evidently maintained offices in the Mills Building in El Paso and in Chihuahua, Mexico. After severing his connection with AS&R, he was in Montpelier briefly and since the fall of 1927 has had his headquarters in Los Angeles, engaged in "examination work, promotion, and operating." During that period he was superintendent or manager of mines in Lower California, New Mexico, Colorado, Arizona, California, and Mexico. Since 1950 his address has been Beverly Hills, Calif.

Surviving are his wife and two daughters, Mrs. S. L. Wilbourn of Los Angeles and Mrs. Gordon Braksman of Palo Alto, six grandchildren, and a brother George of New York.—**Edward B. Rowe,** Secretary-Treasurer, 11 Cushing Road, Wellesley Hills 81, Mass.

'07

The following attended the class dinner at the Faculty Club on November 17: Robbins, Martin, Moody, Gould, Rand, Ashenden, Small, and Walker. We had two graduate students, Robbins and McKelvey, as guests. Our speaker, Dr. B. Alden Thresher, '20, Director of Admissions, Emeritus, at the Institute, spoke on how student applicants are sifted out to become freshmen, a procedure very different from that used when '07 entered 54 years ago. Your Secretary spoke on recent changes in our class membership.

Milton E. MacGregor teaches in the public schools on the Cape. I also saw a notice that, on Layman's Sunday, October 15, he gave the Layman's Message at the Brewster Baptist Church. . . . A recent letter from **Ed Temple** gave the information that his organization, Temple and Crane, has now become affiliated with the William M. Bailey Company, of 43 Tremont Street, Boston, and that Ed is vice-president of this company. The late **George A. Crane** was Ed's partner for some years. . . . Your secretary had the pleasure of a call from **Gil Small** early in December. Gilbert is still very active as the head of his own construction company and was in Whitinsville and vicinity looking for new business. I will make a standing offer to take any '07 men to luncheon if they will come to Whitinsville by appointment and visit with me. Possibly in this way, I may be able to obtain information about them or others in our class.

The Alumni Association office has sent me notice of the death of **George T. Gambrill, Jr.,** Course III, on September 3, 1961. He had been carried as a non-associate member of the class. His card shows he had served as district superintendent of the Barrett Company in Fairfield, Ala. The latest Alumni Register recorded him as a consultant with the U.S. Pipe and Foundry Company in Birmingham. His home address was 1022 South 43rd Street, Birmingham, Ala. Any further information would be welcomed by your secretary. . . . With new calendars for 1962 on your desk, put down the dates of our 55th Reunion—Friday, June 8, Sunday, June 10—and start making your plans to be present at the Oyster Harbors Club, Osterville, Cape Cod, Mass.—**Phil Walker,** Secretary and Treasurer, 18 Summit Street, Whitinsville, Mass.; **Gardner S. Gould,** Assistant Secretary, 409 Highland Street, Newtonville 60, Mass.

'08

Our third dinner meeting of the 1961-1962 season will be held at the M.I.T. Faculty Club, 50 Memorial Drive, Cambridge, Mass., on Wednesday, March 7, 1962 at 6 P.M. See if you can join us. Ladies are invited. You are sure of a good time meeting old friends. . . . Have you made your gift to the Alumni Fund yet? If not, please do so soon, so '08 can make a good showing. . . . Have you been attending the monthly luncheons of the M.I.T. Club of Boston? These are held at the Old Union Oyster House at 12:15 P.M., usually on the third Thursday of the month. In addition to an excellent meal, you hear interesting speakers and meet old friends of other classes. . . . We are sorry to report the death of **Thomas B. Owings** in Washington, D. C., on June 8, 1961 and of **Mason T. Whiting** in Brookline, Mass., on December 9.

The following newsy letter from **Jimmie Burch** is interesting. I wish more of you fellows would follow suit. "Dear Nick: The arrival of the November Review reminded me of what a pleasant time we had at the reunion in spite of the absence of so many regulars. I was particularly indebted to Colonel **Steese** for the way he shepherded me from Springfield to Harwichport to Boston, then a round trip to Tiverton, R.I., on an errand of mercy and finally Harwichport to Boston. Both Charlie and I appreciated the attendance of the others as we felt it was more or less a personal compliment.

"The Alumni Day luncheon was as usual except that the 1908 table filled up so fast that I had to mix with other classes. The cocktail hour was really the highlight of the day, but I never quite figured why **Fred Cole** didn't show up for the banquet. I was sorry to learn that both **George Freethy** and **Henry Sewell** could not attend because of illness. I hope they are now on their feet and will be around next year for Alumni Day. Without them, it is quite disappointing, especially with the absence of those regulars who won't be present any more.

"I have had a busy summer and fall, with the bank and traveling hither and yon, and there just does not seem time enough to crowd everything in. I attended the American Bankers Association meeting in San Francisco in October, then made a trip around the lumber mills as I am still somewhat in the lumber business as honorary chairman of the Midwest Lumber Company. I stopped off in Los Angeles a couple of days to visit my nephew (Homer Burch) there, who has a specialty millwork business, then to Espanola, N.M., where my sister and her husband have a fruit ranch. Their son is a Sc.D. (Harvard) in nuclear science and works at Los Alamos about 25 miles west of Espanola. Marie felt my trip west was too strenuous for her, but when I returned, I found she had gone to Hot Springs, Ark., for a series of baths which she likes to take twice a year. She invited me down so I got into my trusty Olds and spent 15 hours for the 715 miles and then took a week of baths myself. We drove over to Wilmette, Ill., to be with the daughter for Thanksgiving. She is a trust attorney for the LaSalle National Bank of Chicago. James Merrill Patton, her youngest boy, is a senior at New Trier High School while the oldest boy, Frank is a freshman at the University of Iowa. The oldest girl is a junior at Iowa but is taking a semester in Florence, Italy, at the branch of Syracuse University. I am enclosing a copy of one of her letters which shows she is enjoying it very much. I understand the sorority at Iowa is missing her as she has a 3.8 average out of a possible 4.0 and is quite a factor in the sorority average. The youngest girl is living with her grandparents in Manchester, Iowa.

"Marie is busy with her painting and counts the time lost when she is away from it. She even wanted me to bring the equipment down to Hot Springs but I finally changed her mind. I hope to be in New York the latter part of January and to make Boston for a couple of days and have a visit with you."—**H. Leston Carter,** Secretary, 14 Roslyn Road, Waban 68, Mass.; **Joseph W. Wattles, 3d,** Treasurer and Assistant Secretary, 26 Bullard Road, Weston 93, Mass.

'11

Your Secretary received Christmas cards from Roberta and **Frank G. Smith,** III, who live at 5310 Manauwea Street, Honolulu. The message on the cards read "Mele Kalikimaka," a Hawaiian "Merry Christmas." Frank wrote: "In Honolulu, in order to fill in days and days of leisure, I do some watercolors. Just amateur stuff, but I do sometimes hang it 'on the fence' of the zoo in Kapiolani Park at Waikiki, along with other daubers' and real artists' work." The pictures on the cards were, he said, silk screen prints from his own paintings, one of his house, which he labelled "Dunwurkin." He also sent two color photos; one of the house and beautiful lawn and garden; the other of him and his wife, adorned with leis, taken on Lei Day, May 1, 1958. . . . A note from **Allston T. Cushing,** I, consulting engineer in Kansas City, Mo., said: "I am practically retired now. I have been appointed national secretary of the American War Dads, an organization of some 300 fathers of men or women who either are serving or have served in our armed forces. Our wives and widows of former members form our Auxiliary. Our purpose and objectives are shown on the enclosed card. Mrs. C. and I are both well. Our children (three) are all married and away from our home." Quoting from the card: "The purpose of our organization is to be of service to our veterans of World War II and the Korean conflict and to the hundreds of those men and women who need help in veterans' hospitals. Another aim is to help the men now in service by sending them gifts and messages regularly. This includes those overseas, on the seas and in all isolated places everywhere. It is a privilege to be a member of the American War Dads and its Auxiliary."

John E. Dunphy, of Silver Springs, Md., died on August 30, 1960, a month after he moved from Washington, D.C., which was reported in the November, 1960 Review. No further details were received. . . . Dorothy Coburn, wife of **William H. Coburn,** I and XI, died November 16,

1961, of a heart attack while driving. She was very active in civic and social organizations, and she and her husband operated a championship horse breeding farm, in addition to his business as an investment counsellor in Boston, Mass. The family includes a son, William H. Coburn, Jr., and one grandchild. . . . Well, mates, that's all the information I have for this issue. Please keep me advised regarding any pertinent events, and perhaps you could spare some pictures.—**Henry F. Dolliver,** Secretary, 10 Bellevue Road, Belmont 78, Mass.; **John A. Herlihy,** Assistant Secretary and Treasurer, 588 Riverside Avenue, Medford 55, Mass.

'12

Word from **Willis R. Salisbury** of Minnesota is that he plans to come East with Mrs. Salisbury for our class reunion, and to tour New England and Canada, taking the Gaspé trip, and home via Montreal and Toronto. . . . We are very sorry to learn that **Cyrus S. Springall,** who volunteered to serve as transportation manager for our reunion, suffered a cerebral hemorrhage on November 29. He is now at the Phillips House of the Massachusetts General Hospital, and I know he would be delighted to receive a card from any of you. He apparently is coming out all right. . . . **John** and Caroline **Noyes** of Dallas celebrated Thanksgiving with practically all of their children and grandchildren at their home. How many?—25 altogether. . . . **Bernard H. Morash,** who has been in Toronto for many years, recently sent us a short review of his many activities. After graduating from Lowell Institute and working for several years he decided to enter the Institute with our class. After graduation he was in Japan four years for General Electric, which was followed by several years in India with the W. R. Grace Company where he unfortunately contracted tuberculosis. He was with Kelvinator in Detroit and later spent a few years in England as head of the English subsidiary; then back to Japan, where he set up an agency for Kelvinator and suffered a reoccurrence of his old ailment. This was just about the time of the depression, and fortunately he was able to set up the Dudley Combination Lock business in Canada.

Two years later this concern was purchased by the United Carr Fastener Company, and Bernard continued on with them. He considers himself very fortunate in being active at the present time as at the age of 76 he has suffered two strokes and two heart attacks, and had to spend two rather long periods in sanitariums. He will not be able to be at our reunion as he expects to be in British Columbia helping his daughter and family settle into a new home. Bernard's permanent address is 30 Elm Avenue, Toronto 5, Ontario, Canada, where he would be delighted to hear from any of you.

Jerome C. Hunsaker, who rates among his many titles captain U.S.N.R., retired, celebrated the golden anniversary of his wedding to Alice H. Avery on last June 24. A large reception was held at the Chilton Club attended by his many friends from this section. . . . Your secretary was very sorry not to have seen **J. H. Pratt** and his wife Priscilla when they were east last summer. They came through Canada, taking in the Shakespeare Festival at Stratford, Ontario, and then on to Maine where they visited with **Bates** and Alice **Torrey.** John reports that he signed the pledge card for the M.I.T. Second Century Fund, and I am just wondering if you have all done the same. Now is the time. **Jerry** is not going to Mexico this spring as they are taking a flying tour of the South Seas and the Orient but will surely be back for reunion. . . . **Aurelius P. Hornor,** who retired several years ago from the Thomas A. Edison Company, enjoyed an extended trip with his wife to his old home in Helena, Ark., last spring. He is in excellent health and reports that he enjoys sitting on the side lines watching the world go past. He may be reached at R.D. 5, Carlisle, Pa. . . . **Page Golsan** will not be at our reunion as he is leaving with his wife on their second round-the-world trip this spring. The new route will take them through the southern hemisphere, Africa, Australia, New Zealand, etc. We shall miss them but wish them a pleasant trip. —**Frederick J. Shepard, Jr.,** Secretary, 31 Chestnut Street, Boston 8, Mass.; **John Noyes,** Assistant Secretary, 3326 Shore Crest Drive, Dallas 35, Texas.

'13

The winter is really with us, together with rain, snow, as well as many of the so-called viruses. Your scribe has been quite ill for the past two months trying to battle the various "bugs." Now that good health is ours again, we hope to make up for lost time. . . . It is with a heavy heart that we announce the death of our dear classmate, **Edgar Menderson.** He passed away September 30 on his 73rd birthday, following a sudden heart attack. Edgar spent a very active life. He was graduated in 1910 from Yale University and received his mechanical engineering degree from M.I.T. with the Class of 1913. He was a pioneer in the automobile industry, and helped with the design of the first Dodge. Later he left the engineering field to enter auto retailing and was associated with the old Herschede and Nason-Towle auto firms in Cincinnati. In 1929, Edgar became one of the directors of Security Savings and Loan, now one of the largest banks in the state. He was also a director of the Ted Menderson Company, an advertising firm owned by his son, Ted. Further he was a past president of the Greater Cincinnati Savings and Loan Exchange. Edgar belonged to the Isaac M. Wise Temple and the Losantiville Country Club. He is survived by his dear wife, Melanie, an authority on parliamentary procedure; son, Edgar; a daughter, Mrs. Robert Schulman of Washington, D.C., and seven grandchildren. We have received two very splendid notes from Mrs. Melanie Menderson, and we quote in part: "Edgar, his wife and 15-year-old grandson had a fine seven weeks' trip abroad this summer. He was well, fine and active. His death came two and-a-half weeks after their return. Nine of his friends were at his home for cards. Late in the afternoon he felt ill, and within a half hour passed away from a heart attack." To Melanie and her family we of 1913 offer our most sincere sympathy. We know that Mrs. Menderson would be pleased to hear from any of our '13ers at 14 Burton Woods Lane, Cincinnati 29, Ohio.

Again, we announce the retirement of Dr. **Harry Lake Bowman.** Harry has served Drexel Institute of Technology for 35 years as professor and head of the Department of Civil Engineering, dean of the College of Engineering, and since 1958 as dean of the faculty. Dr. Bowman received a bachelor of science degree from Pennsylvania State University and a master's degree from M.I.T., as well as an honorary degree of doctor of engineering from Drexel. He has had varied experience over the years, being associated with the Philadelphia and Reading Railway; C. E. Smith, consulting firm of St. Louis; American Bridge Company; Purdue University; and M.I.T. He held an appointment from former President Truman as director of the physical damage of the U.S. Strategic Bombing Survey; he supervised field teams which visited some 100 bombed sites in Germany and Japan. For this service he was awarded the Medal of Freedom by the War Department. Since 1948 Doc has been a consultant for the Atomic Energy Commission and for the Air Force. He has moved lately from Drexel Hill, Pa., to Rockville, Md., making his home with his daughter, Mrs. H. W. Wells. Another daughter, Mrs. Bruce Hawley, resides in Nashville, Tenn. His son, Dr. Edward H. Bowman, '46, is associate professor of industrial management at M.I.T. Good luck, Harry, in your retirement.

Again, we are bearers of sad news, Rear Admiral **Edward H. Smith** (retired) of the Coast Guard passed away on his 72nd birthday, October 29 at his home at 437 Sippewissett Road, Woods Hole, Mass. He served for 40 years in the Coast Guard until July 1, 1950, having been the commandant of the Third District and the eastern area of the Coast Guard with headquarters in New York. He had served in World War I in the Mediterranean and European waters. Following the war he became interested in and was an authority on icebergs, ocean currents and Arctic weather. He received a master's degree from Harvard in 1926 and 10 years later his doctorate in oceanography. Following his retirement he continued his studies of wind and waves as director of the Woods Hole Oceanographic Institution. Admiral Smith is survived by his wife, Isabel B. (Brier), and three sons. To the Smith family the Class of 1913 extends the most heartfelt sympathy.

We received several comments or notes in addition to the class dues. **Alexander Pastene:** "Just moved to Massachusetts, Phil, and so may be available in 1963 in case I'm still able. New address is 146 Landham Road, Sudbury, Mass." **Laurence Bevan:** "I hope to attend." **Alfred Higgins:** "Good to hear from you, Phil,

I'm retired and address is 70 Governors Road, Milton 86, Mass. Best of everything to you." **Clarence Brett:** "Everything as usual here—slowing down a little though. Between business, town affairs, and Y.M.C.A. manage to keep quite busy." **Herbert Shaw:** "On our way home from the class reunion we went down on the Cape and spent a week there, at an Inn Mr. Carlson suggested; we liked it very much. While on the Cape I picked up nine old watches, some very old. I think that I can get most of them running this winter. I also found one nice old clock. The last of September we were in Plymouth, N.H., for two weeks, where I found five old watches. I think this is doing quite well, but then I am always looking for more watches to keep me busy." **Charlie Brown:** "Had a fine vacation and a hot summer following the very good reunion dinner, and hope you did as well. I am still working a regular week and hope to continue for years to come; the income is greatly appreciated. Am looking forward to the 50th Reunion as is Helen, and expect to have the usual topnotch time at Oyster Harbors. You might persuade Herb Shaw to exhibit a few of his watches then—he has a fine collection, and it is growing fast." **Al Brown** states: "Please note change in address, 195 St. Paul Street, Brookline 46, Mass." **Geoffrey Rollason:** "No news worth sending—Marguerite and I are 'as well as can be expected.' I go to Chicago today for the annual meeting of the American Die Casting Institute, of which I have been 'Field Representative' for some years—not a very arduous or well-paying job, but gets me out and around a bit." Lest we forget? Start saving those extra dividends for we have a date in June, 1963.—**George Philip Capen,** Secretary and Treasurer, 60 Everett Street, Canton, Mass.

'14

Thorn Dickinson has again returned to New York City after his long summer at Blue Ridge, N.Y. He spent the 1961 summer in his usual way, hiking through long and often abandoned trails, laying out nine miles of new trails. In addition he put up 40 trail signs. Thorn was first graduated from Williams, where he has recently celebrated his 50th Reunion, and then came to M.I.T. and was graduated with our class. Thorn has always been an enthusiastic '14er. Anyone who has tramped trails and mountains to the extent he has, makes M.I.T. '14ers envious. As a civil engineer, he has spent much time in the Mediterranean area, including a three-year assignment in Turkey, assignments to Greece, and elsewhere in the Middle East.

Another classmate who has joined our retirement family is **Raymond MacCart.** Although he is still in Washington, he is also carrying on a small investment business. . . . **H. S. Busby** has just told us about his new work with Western New England College. He is associated with their Administration Office, whos principal activity is raising funds for this new and very active college which was formerly a part of Northeastern University. . . . **Charlie Fiske** and his wife stopped in Boston and were hosts to my wife and me enroute to his winter stay in the Barbados. We discussed our coming 50th Reunion. Although no decision was made, the general sentiment seems to be to have a spot close to Boston where wives can be included. There could be, however, some separate sessions in which classmates could have a chance to reminisce. . . . **Vernon Tallman** was formerly a frequent attendant at our reunions and Alumni Days, so your secretary called him to see if he had retired. While this did prove to be the case, it was learned that he had been ill for several years with asthmatic bronchitis, which prevents him from going out except in very warm clear weather. Vern spent all of his business life in the public utilities field and at the time of his retirement he was vice-president of nine utilities companies. He is still living in Weston, Mass. The best of luck goes to him for a speedy recovery.

Rupen Eksergian died on November 30. He was best known at the Institute for his participation in the musical clubs and as conductor of the Technology Orchestra in 1912. He prepared for Tech in Somerville, Mass., was graduated in both mechanical and electrical engineering, and stayed on for another year to earn his master's degree. He then went on to Clark University where he earned a Ph.D. He was a well-known engineer and designer in industry and Army ordnance. His work in the latter field during World Wars I and II was widely known, especially his design of a self-propelled gun. He was a consultant for the Bethlehem Steel Company and other firms. Eksergian was a member of the Board of Managers of the Franklin Institute, an associate editor of the Journal of the Franklin Institute, and he published many technical papers. He had received many honors, including the Henderson Medal, the Levy Medal of the Franklin Institute, a gold medal from the American Society of Mechanical Engineers, as well as citations from the War Department. Eksergian died of a heart attack after an automobile accident in Philadelphia. His wife, the former Mayridell Nagenbuch, and a daughter survive him.—**H. B. Richmond,** Secretary, 100 Memorial Drive, Cambridge 42, Mass.; **C. P. Fiske,** President, Cashmere, Paynes Bay, St. James, Barbados, B.W.I.; **H. A. Affel,** Assistant Secretary and Class Agent, R.F.D. 2, Oakland, Maine.

'15

As this column is being prepared for the December 15 deadline, I hope all you classmates and your good families have enjoyed a happy holiday season. So far, there is no snow or ice around the Cambridge-Boston area and what a relief from the traditional New England winters we had on Boylston Street. Next month's column will give you the play by play on our annual New York City Class Dinner at the Chemists Club on January 26. **Bur Swain** and **Larry Landers** are setting this up to assure our usual good time over there. With a big class dues check Bur Swain wrote "Your Class News are a first with me, a must and they are fabulous." What a guy! Thanks very much, Bur, for them kind words! . . . It's sad to report that **Kendall P. Foster** passed away on November 7, 1961 in Hollywood, Fla. **Forest J. Funk** died October 8, 1961 at Wilmington, Del. The feelings and sympathies of our class go out to these two families. How about some "help" for next month's column?—**Azel W. Mack,** Secretary, 100 Memorial Drive, Cambridge 42, Mass.

'16

We are glad to start with word from **Ralph Fletcher:** "Reunion-time is less than four months away and Harold has asked me as your president to send out the official call for all good reunioners to start making those moves which will make it possible for them to attend the 46th Reunion of the Class of 1916. The Chatham Bars Inn, Chatham, Cape Cod, Mass., is holding our special accommodations for us, promising us good weather, and again planning an old fashioned clambake for us right on the edge of the beach. Let me remind you again that the ladies are very welcome to join with us on this occasion. For years now, we have been inviting them to the interim reunions and last year for the first time we invited them to a fifth year reunion and it worked out wonderfully. Many of those who could not make the big reunion last June wrote then that they would definitely make the 46th. Could be a wonderful turnout. Do your best to make it. Notices will be out in the mail shortly. **Irving McDaniel** has gone on record that he will make this one, and he is coming from Spain via Syria, Cairo, Bangkok, Nepal, parts of Cambodia and South Vietnam, Singapore, Hong Kong, and many other places on to Los Angeles. He will have quite a story to tell.

"I was very pleased to have my old friend, **Joel Connolly,** remember me again as he always does with a birthday card. After getting cards from Joel from all over the South Pacific, it was rather unique to get one from him postmarked Iowa City, Iowa. Now that he is back in the country, I hope we can get Joel and Virginia to make the 46th.

"I was very pleased, as many of you must have been, to see in the December, 1961 (page 30) issue of The Technology Review pictures of '16ers right in the thick of the Second Century Fund Drive. **Phil Baker** and **Tred Hine** were in a picture taken at Detroit; and **Steve Brophy** appeared in a picture taken on National Alumni Night in New York City. . . . With all the talk about fallout shelters, it was interesting to read recently in the Boston papers: 'The New England phase of the national fallout shelter identification and marking program will get underway soon in northern Essex County. The New England Survey Service, Inc. of Boston will make the surveys under a

contract awarded yesterday by the Army Engineers.' Our good friend and classmate, **Hy Ullian,** is president of this survey firm. . . . I was very happy to receive today a Christmas card from Mary and **Wesley Blank.** Wes writes: 'As a retired individual I've been busy writing a book just out from Vantage Press, 120 W. 31st Street, New York City, Subject—"4 Turbulent Decades" covering the unrest in the United States from 1920 thru 1960, sociological, economic, political and scientific.' Congratulations, Wes. Sounds like the kind of book many of our classmates will want to read. . . . Thanks very much, Harold, for this opportunity to say 'hello' to the gang, and may I publicly commend you for the excellent column you compose month after month, and urge you to continue your fine contribution to the class."

In October, **Dick Hunneman** flew over Chateau Thierry. He was one of a delegation of Third Division Veterans who went to the dedication on October 8 of a new Third Division Monument, unveiled to replace the former one which was demolished by the Germans during World War II. The dedication was attended by military units from the French and American Armies and about 2,000 French citizens. The active Third Division is now on duty in Germany and the commanding general was among the speakers. Dick then "spent several days touring the familiar battlefields, and the many villages whose names bristle with recollections, and stood on the ground where I was wounded 43 years ago near the Madeleine Farm, on almost the same date. I visited World War I cemeteries where lie thousands and thousands of those with whom the allied governments broke faith, and I had some reactions. I stood at the Treaty Table in Versailles and pounded it (with my fist, not my shoe) as I riled at the failure to enforce the Treaty." Dick notes that, as he felt this remissness right from the start more than most people, he recalled Churchill's saying of World War II: "There can hardly ever have been a war more easy to prevent than this second Armageddon," in his book "The Gathering Storm." As he brings out, we need to be reminded of some of these things. . . . **Bob Crosby** writes from Marblehead that he has taken up golf again but continues in the 100-plus class. This together with do-it-yourself projects seems to keep him busy most of the time. His and Mrs. Crosby's traveling consists of driving to Bar Harbor, Maine, to visit their daughter and son-in-law who are both working at the Jackson Labs there.

In mid-December **Steve** and Jess **Brophy** took off for Europe to spend Christmas and New Years with their youngest daughter, Joan, and family in Berlin. Joan's husband, Major Thomas B. Tyree, is in command of the Tank Corps Detachment in West Berlin, and as such, in charge of our operations at the Friedrichstrasse Gateway, otherwise known as "Crossing Charlie." Steve says: "Tom is a West Pointer, Class of 1940, and plans to make the Army his career. Since graduating, he has served in Korea, Algeria, and on the instructing staff of the Academy. They have one son, Thomas B. Tyree, Jr., 10 months old." After their stay in West Berlin, they expect to visit other parts of West Germany, Denmark, Belgium, England and France, both Paris and the Riviera. In the little town of Vence in the south of France they have another daughter, Cynthia, her husband, John L. Cleveland, Jr., and three grandsons, so they intend to spend some time with them before returning about April 1. Speaking of something else in which Steve has been active, he mentions with pride that "they have in hand the $2,000,000 they set out to raise for the establishment of the Institute of Reconstructive Plastic Surgery at New York University Medical Center. In addition, they have obtained grants totalling about $1,750,000 for basic research in the treatment of severe burns, including the establishment of a comprehensive burns center in Bellevue Hospital, the first of its kind in the country. Victims of airplane crashes, automobile accidents, cancer patients, etc., will be the beneficiaries of this undertaking." If you will guess along with us you won't have much trouble in guessing who the 'they' mentioned above is.

Ed Hanford sent word in mid-November from Fort Belvoir, Va., where he was taking the Army Engineers Fallout Shelter Survey course (two weeks), and at 5 A.M. he was "up, showered, shaved and dressed." Ed doesn't work all the time, he says, but helps some of the local engineering firms when they are busy; his home is in Hammond, Ind. He has been traveling quite a lot—spent last summer in Birmingham, Ala., running an appraisal on a $7 million feed plant, and had just been working on preliminary reports on a waterworks and dam project in Tegucigalpa, Honduras (the spelling's right—we checked). Ed writes that **Bob Wilson** is the only classmate he has seen in recent years: "talked him into speaking to a combined engineers group dinner during Engineers Week two years ago and that same day he was appointed to the Atomic Energy Commission, so it was quite an evening. Bob hasn't changed in appearance in 20 years." Ed said the course at Fort Belvoir "is really tough. I live in BOQ which may bring back memories to some of you. From what the boys tell me it hasn't changed. After the course is completed we will supervise surveys of community shelter areas, provided we pass the course, I hope." Back home, Ed is vice-president of the local Professional Engineers chapter, trustee and church treasurer, and on the board of governors of the local Girl Scout organization "so I don't have much idle time." His hobby is painting and he is active in the local painters' group, and finally, he's a kindred spirit, for his proudest achievements, too, are his Christmas cards. He silk screens his every year. We hope to hear from Ed more often from now on.

In early December **Irv** and Kay **McDaniel** were ready to start on their long exploratory and investigatory trip from their erstwhile home in Malaga, Spain, to Los Angeles, via just about everywhere in Egypt, India, Thailand, Hong Kong, and Japan. Their Irv-made Christmas card showed the view from their living room—the Sierra Nevadas, "and at the foot of one of them lies Grenada and the unforgettable Alhambra. The tower (torre) on the hill was built by the Moors over 1,000 years ago." For anyone who wants information, we have their December 11 to May 9 itinerary. On February 1, for example, they will be in Delhi; on February 15, in Kandy, Queen's Hotel. Irv promises to carry on his researches on night clubs and "will try to be fair, unbiased, and objective but very little of it will pass mail censorship—especially my Far East report. Night clubs there are more personal than those you are accustomed to and there is audience participation." They plan to go to many interesting and unusual spots—some hot spots (both politically and otherwise)—and they should be there long enough to form some definite opinions. Irv mentions several items, among them the following, to be covered: "What goes in Syria; check on named belly dancers in Cairo; night life in Bangkok—it is different; can we keep the Peace Corps out of ——; what is happening in Cambodia and South Vietnam; Singapore—was there years ago for two weeks—had read 'who-dun-its' and knew it was a wicked city. I searched diligently but never found anything. Hong Kong—places made famous by Suzy Wong. Kyoto, Japan—Katherine has arranged for a series of lessons in flower arrangement. I am taking advanced work in photography-art class with Japanese models. I feel certain Class of '16 will want a complete detailed report on . . . Katherine's Flower Arrangement classes." Regarding Bangkok, Irv digresses: "Several years ago, Bill Sullivan, '17, and yours truly were in China and we saw some wooden figures about 18″ long; the Chinese medicos used them as they were not permitted to look at their female patients. The patient's mother described the symptoms and then pointed to the model to locate the pains." Which reminds us—in the 1918 column of the November issue, the late Bob Means, '18, recounts from Switzerland memories of his participation in the Tech Show "Getting Across," written way back there by Irv McDaniel! Bon Voyage, Irv and Kay—keep us all informed.

We reported that **Val Gooding** had retired from Strathmore Paper Company in West Springfield on September 1, at least from the job of technical director that he had, but he is staying on for awhile full time as a consultant. He enjoys the work especially "because the pressure is reduced." He notes: "My wife and I plan to take some time off along about February and go to Florida, return by way of Texas where we plan to visit a daughter, and then get home in the spring in time to clean up the yard and get things going again." . . . Wherever you go, don't be surprised if you see something in the local paper about some '16er. This happened to your secretary when he picked up the morning newspaper in Albuquerque, N.M., on December 8—in fact, column 1 on page 1. The headline was "A-Power to Vie with Coal, Oil is Now Possible—AEC Official Says Long-Sought Goal Has been Achieved." Yes, you guessed it. It was Bob Wilson, and the location, Tokyo. Quoting from the

Albuquerque Journal: "Dr. Robert E. Wilson, a member of the U.S. commission, told the conference that recent developments indicate plutonium, heretofore used only as a bomb explosive, can be employed successfully as a reactor fuel. Wilson reported that an experimental reactor at Hanford, Wash., the so-called plutonium recycle reactor, has been operating at full power for more than a month. The early results, he said, lead to optimism regarding the comparative value of plutonium as a reactor fuel."

Herb Gilkey requested a copy of **Van Bush's** article mentioned in the December column. He enjoys reading the column, and says he continues to keep well "in a puttering sort of way." He still keeps his address at Iowa State University, Ames, Iowa, where he taught so long, and says he has recently "shipped between two and three tons of technical literature to various libraries in the U.S. and Asia—and there's still a lot more." He still writes an occasional technical paper and travels about a bit "to attend meetings and visit the grandchildren." . . . Dr. **Raymond Blakney,** having completed four years as president of Orlinda Childs Pierce College in Athens, Greece, is back in the U.S.A. and is now minister of the Prospect Congregational Church in Seattle (semi-retired). He regrets that his work "has made it difficult to reune" in the past few years but he continues to send his best wishes. We have reported on his brilliant and unusual career from time to time over the years, but for the real story and some of its detail, a reading of "Who's Who" is recommended. . . . In November, **Duke Wellington** wrote from White Plains: "Have just got organized on my return from residence on Littlejohn Island, Maine, so you see I am a Maine-i-ac like **Charlie Woolley** and **Elizabeth Pattee.**" He says he can agree with the statement that it was a lousy summer, that up—no, down—there "when it is bad, it is bad!" He says it looks as though he would join Charlie as an investment broker on a part-time basis. He expects to take a trip to Atlanta to see his great-grandchild who is expected in January! If our incomplete records are correct this will make Duke the first 1916 great-grandfather. If that is not right, we will expect pronto to receive appropriate information from appropriate sources. Re the 45th, Duke says: "I cannot let this opportunity go by without saying the reunion was a great success and that I had a wonderful time. May the next one be bigger and better if that is possible." Just another indication that you can't afford to miss the 46th next June!

Talk about records for long service, can you beat this? **J. Spotts McDowell** retired July 31, 1961, after 58½ years with Harbison-Walker Refractories in Pittsburgh! Fifty-eight and a half years! He remained active, of course, beyond the normal retirement age of 65—as the company says: "to give the company the benefit of his wide knowledge and experience, and during the past couple of years, to handle the editing of the Fourth Edition of 'Modern Refractory Practice,' just completed." His story is told in the July-August issue of the company's magazine "Burns and Mixes." Spotts graduated from high school in Clearfield, Pa., in 1902, and started with Harbison-Walker in November of that year. Early work included surveying, mapping, civil and mining engineering assignments, then assistant to the chief engineer, who was in charge of all the company's mineral properties, where he supervised prospecting and made examinations of prospects and deposits of refractory raw materials. About then he got a leave of absence, went to Tech, graduated in 1916, and prepared a thesis, 'A Study of the Silica Refractories,' which was later published by the A.I.M.E. In the Technical Division of Sales and later as general sales manager, he carried on technical and research projects on refractory materials, some in customers' plants and some in his company's. From 1928-32, Spotts was director of research. From then until retirement he covered special technical assignments relating to refractories, and from 1947 reported to Earl A. Garber, now chairman of the board. He has been very active in professional societies—notably the American Society. Now that he has retired he expects to do some traveling but will continue to live at the Webster Hall Hotel in Pittsburgh.

Cy Guething says he's "making quite a success at guiding." He had a successful season last summer at Pointe au Baril, Ontario, and he and Gypsy were returning to Harbour Island, Bahamas, early in January. Says further: "The fishing is tops in both places, and just enough social life. Believe Canada tips the scales down with that 10-year-old 'Wisers'—nothing comparable in the Bahamas. The bathing at Harbour Island on the pink sand beach is beyond description." They will be East again "late May and early June" for a 50th prep school reunion and hope to get to the 46th on the Cape. . . . **Ernie Gagnon** expresses amusement at the note in the December column in which **Buck Bucknam,** when referring to **Ed Jenkins,** spoke of California as "God's Country." Says he has not seen Buck for 38 years, but the statement from Buck was "the best yet," for "Buck, when I knew him, still had the odor of Plum Island and the Joppa clam flats of Newburyport in his shoes." Your secretary and others will also admit association with clam hooks and eels even though our clam digging was located a bit farther down East, in Ocean Park, Maine. Last August Ernie took a trip through Vermont and New Hampshire and across to Belfast, Maine, where he spent a few days during the harvest time on a blueberry farm. "Pie every day," says he. He notes that the account of the 45th practically sells him on driving the 1,350 miles from Hurtsboro, Ala., to the 46th at Chatham in June. We'll all look forward to his coming.

Rudi Gruber says he understands the enthusiasm with which Irv McDaniel speaks of Spain, having returned from a four months' absence in Europe. He says he spent over a month motoring through Spain and Portugal, and even Andorra, in a Peugeot 404 purchased in Paris. The main purpose of his trip was to visit "kin" who are spread from Hamburg to Naples. He notes: "By the way, an item on page 36 of the December Review caught my eye. I noticed my old firm Merck and Company listed as Number 59, with 35 M.I.T. Alumni among its employees. This reminds me that at my start at the Merck factory in Rahway, N.J., in 1916, I was the first and only M.I.T. man in the organization, and now, **Vannevar Bush** is the chairman of the board!" . . . That seems to bring to a close the news for the present. We have word from those who are looking after those things that 1916 is lagging in Alumni Fund matters. The percentage participation is just not what it should be. Something from many is what is wanted, they say, and they ask that this be noted in the column. Finally, as Ralph has said at the start of the column, plan ahead now to attend the 46th in June. Also plan to be on the list of those who make the secretary's work a pleasure by letting us know what you're doing, where you've been, who you've seen, and all that.—**Harold F. Dodge,** Secretary, 96 Briarcliff Road, Mountain Lakes, N.J.

'17

"The more we get together, the happier we'll be." Of course, I am referring to our 45th Reunion next June at Snow Inn on the shore of Cape Cod, Harwichport, Mass. See you there? . . . **Irving B. Crosby,** whose decease was reported in the December, 1959, Class News, has made substantial bequests to the Institute. With his estate not yet fully settled, the Institute has received $143,340.32. In addition, Irving left his geology library to the Institute. The financial bequest is for establishing the William Otis Crosby Lectureship Fund in memory of Irving's father who was long a professor at M.I.T. This generosity on Irving's part showed his continuing deep interest in M.I.T. It will be recalled from our class 30th anniversary historical report that Irving was a world-wide authority on large scale foundation sites. He was a consultant to several foreign countries and traveled over much of the world.

We have the following from **E. G. Senter, Jr.:** "At 69, I am president and general manager of Dallas Petroleum Company (oil production) and E. G. Senter and Company (real estate holding and developing), both Texas corporations. While not setting the world on fire, I manage to keep fairly busy and enjoy some golf over the weekends. I note that many of our group are retiring, but I find it difficult to turn loose. There is no change in my marital status. I am single and without prospects." . . . **Allison R. Williams** writes from Danvers, Mass.: "I am retired after many years of continuous activity as a consulting engineer in civil life, and with the military in both World War's I and II. My wife and I have 2 daughters and 10 grandchildren who keep me quite busy except when I am making an effort to interest some developmental or manufacturing company in some of my patents. Sometimes I think the whole clan wishes there was no such word in the dictionary as 'patent' but any of you who

have been interested in new ideas to the extent that you have pursued and developed them, know what I mean when I say that they are like having a bear by the tail. You feel sometimes that you would like to turn loose but can't. Right now, it is a sensing control device for optimum braking of a wheel, that early fascinating gadget which was developed and exploited in many ways so universally."

Max Mackler, whom we heard from briefly in the Class News of last November, writes: "I am sorry to inform you that my beloved wife Rena passed away August 30 after 42 years of happiness and love. My plans are to leave Tampa, Fla., on or about December 1 for medical and surgical treatment in New Bedford, Mass. I will be with my nephew, Dr. Edward Mackler. I hope that I can make the 45th Reunion." . . . **Heine Gartner** and his wife Elizabeth have been away on their annual cross country auto trip, visiting married daughters and grandchildren. The last word from them came from Boulder, Colo. They are due home the first of December, 1961. . . . **Dix Proctor** continues as the active M.C. for the monthly class luncheons at the M.I.T. Club of New York in the Hotel Biltmore. Dix reports the following attendance at the November meeting: Bill Sullivan, A. R. Morton, Bill Hunter, Dick Loengard, Bill Neuberg, Ken Lane, and for the first time, Roy Sylvander.

Since this is Washington's Birthday month, the only timely joke, although somewhat corny, is entitled "Hard to Swallow." "My father has George Washington's watch in his collection." "That's nothing. My father has Adam's apple." Since notes are scarce, another may be permitted. Mike: "Pat, your nose is suspiciously red this morning. What makes it so rosy?" Pat: "Sure, 'tis the reflection of me soul, blushing with pride at me ability to mind me own business."—**W. I. McNeill,** Secretary, 107 Wood Pond Road, West Hartford 7, Conn.; **Stanley C. Dunning,** Assistant Secretary, 1572 Massachusetts Avenue, Cambridge 38, Mass.

'18

What we all leave behind is the enlarged size of our own shadows. If, even though purged by tragedy, some of us could see those shadows, we would doubtless be surprised. Among those whose character comes throbbing alive, despite a heart which beats no longer, would be **Albert Haertlein,** late distinguished professor of the Harvard Engineering School. Comes a letter from one of his former students part of which read as follows: "Al was a very much loved professor, helper of scores of us both at Cambridge and at Squam Lake, N.H., head of the Civil Engineering Department, associate dean of the School, and a very able civil engineer respected in his profession. Particularly impressive to us, his former students in the Harvard Engineering Society, was the fact that to him the students' needs for time and help always came before his own needs. Albert Haertlein's more than 40 years of devotion to the Harvard Engineering School and the Division of Engineering and Applied Physics endeared him to faculty members, former students and other leaders in the engineering world. Immediately on his death, a number of people thought that the memory of his contribution to the school should be perpetuated, and a collection was started for an Albert Haertlein Scholarship Fund. After a few months the Harvard Engineering Society felt that they were the ones he had served and were the ones to erect this memorial and have therefore carried on with raising the money. At the present time more than $11,000 has been raised and we are anxious to achieve approximately $25,000. A minimum of $15,000 must be reached before the scholarship can go into action. If you wish to make a contribution, your check should be sent to Reuben Samuels, Treasurer, Harvard Engineering Society, 624 Madison Avenue, New York 22, N.Y. Contributions to this fund are tax deductible."

One way of leaving an abnormally lasting, though usually ignored shadow, is to get a few reflections embalmed in printer's ink. Your scribe, who has more feeling for the careful carpentering of words than for precision of measurements or the determination of the rate of change of a quantity, has had another article in the "Ladies' Home Journal." This one is hard to find. It is not in the index, but, at least in the eastern edition of the December issue, is incorporated into the advertising supplement inserted between pages 104 and 105. Title: "Christmas Journey," and it is an entirely true story. If you want a memory to cherish, I recommend that any newly retired old man, with the heart of a reasonably small boy, try the adventure himself. . . . Through the notices in the "Boston Herald" we learn that **Maurice A. Reidy** died on November 19. Though he did not stay with us long enough to receive a degree in civil engineering, Maurice's final shadow was as the senior partner of the Reidy Engineering Company of Boston.—**F. Alexander Magoun,** Secretary, Jaffrey Center, N.H.

'19

An interesting card from **Jim Hawkes** tells of his retirement heaven. "Still living in the interior of Panama. This is a wonderful country, needs a lot of feeder roads to open the country for farming. There is plenty of land and ideal climate. Best regards to the Class of 1919." . . . **Jack Fleckenstein** writes that he is working with the General American Transportation Corporation in Michigan and can be usually reached during the middle of the week at the Detroit Athletic Club, if any '19 men are out that way. His daughter, Joan, M.I.T., '53, is married and working for California Research. . . . **Arthur S. Johnson,** Byfield, Mass., retired in September as vice-president of the American Mutual Liability Insurance Company, Wakefield, Mass. He was manager of the company's engineering department, directing the company's loss prevention activities in its 82 offices. He was also widely known for his safety activities. He and his wife are on an extended tour of Europe.

September also marked the retirement of **Harold E. Langley** as bridge engineer of New Hampshire's Public Works and Highway Department. Over the years, Langley's department gained a reputation for progressive bridge engineering. Four of his bridges won national awards, and under his direction the department made many advances in bridge design and construction. . . . **Maurice Goodridge** writes that he will retire in April after almost 40 years with the Mass. Electric Company. . . . **Ernest F. Perkins** has just retired from the Deering Lumber Company of Melrose, Mass. . . . **E. R. Helmrich,** who retired a year ago, is still involved in road building. A freeway is being built on seven acres of his frontage, and he is building new driveways on his own property. . . . **Earl P. Stevenson,** of our class is listed as Chairman of the Board of Arthur D. Little, Inc., in a recent release which mentions M.I.T. Alumni who are officers of that company. . . . It is with regret that we report the death of **William James Hagan, Jr.** on September 29, 1961. Also, **Frederick G. C. Smith, Jr.** died in Holyoke, Mass., on October 20, 1961.—**Eugene R. Smoley,** Secretary, 30 School Lane, Scarsdale, N.Y.

'20

The new Alumni Register no longer includes listings of living Alumni by classes. However, the Alumni Office has thoughtfully provided your secretary with this information and the following statistics for the Class of '20 may prove of interest. The total number of individuals affiliated with our class and still alive numbers just about 475. Of these, about 170 never did get a degree from M.I.T. Then there is another group of some 80 that achieved master's or engineer's or doctor's degrees, and of these about half did so without obtaining bachelor's degrees from the Institute. The class total shown on the Alumni Fund Report, which excludes those who have no degree from M.I.T. plus those who have never contributed to the Alumni Fund, comes to 363. What this all indicates, if nothing else, is that the Class of '20 is still very much alive, in case any of you oldtimers or your wives or families have any doubts about it. . . . Casual examination of the Alumni Association Directory for 1961-1962 would seem to substantiate the above claim. **Ed Ryer** is chairman of the Alumni Fund Board and representative of the class on the Alumni Council. Other Council representatives of M.I.T. clubs are **Al Burke,** Charleston; **Jim Gibson,** Knoxville; **Perk Bugbee,** Akron; **John Nalle,** Hong Kong, and your secretary representing Havana, of all places. This, I hasten to add, does not mean that the above named are located or geographically affiliated with said places. On Departmental Visiting Committees we find **Ted Bossert** for the Metallurgy Department, **John Barker** for the Medical Department, and **Home Howes** for the Library. On the Institute's Educational

Council we can boast honorary secretaries such as **Archie Cochran** in Louisville, **Al Glassett** in New York City, and **George Morgan** in Beaumont, Texas, and Educational Counselors such as **John Bowman** in Buffalo and **Walt Sherbrooke** in New York. So, there! . . . **Charlie Klingler** is among those basking in Florida this winter. His address: 2847 N.E. 26th Place, Fort Lauderdale. Dr. **Charles Ruby** has left Boston and is in Louisville, Ky., at 2317 Alta Avenue.—**Harold Bugbee,** Secretary, 7 Dartmouth Street, Winchester, Mass.

'21

Another first! **Edward** and Katherine **Dennison** of Waterford, Conn., are the proud grandparents of the first member of the 1921 Third Generation Club at M.I.T.! Michael Paul Sutherland, son of Jack and Lisa Dennison Sutherland, is a member of the Class of 1965 at Technology. We'll echo the good wishes from everyone in the class to this young man for a successful career in his chosen field and also send the combined congratulations to all the Dennison family, especially the couple, who can be reached at 10 Lloyd Road in Waterford. In reply to our urgent plea for details, Ed writes: "Many thanks for your letter and the congratulations. Needless to say we are all pleased about Mike, but so far as this progenitor is concerned, this is undeserved notoriety! Mike's father is a commander in the U. S. Coast Guard, a graduate of the Coast Guard Academy here in New London and also the holder of an engineering degree from R.P.I. The Sutherlands have lived in scattered places from Santo Domingo to Hawaii. Mike went to schools in Washington, Troy, Honolulu, etc., finally graduating from high school in Tottenville, Staten Island, N.Y. His family has now moved on to the Ninth District in Cleveland, Ohio. Mike certainly has displayed some aptitude in having survived this checkered school career and having been accepted by four of the best schools. He is thinking of mechanical engineering, with emphasis on the analytical side. He is fond of sailing and swimming. He has joined Theta Delta Chi.

"We have a granddaughter and six grandsons. Several of the latter who are old enough to show any inclination, seem to be heading toward science or engineering. Possibly more grist for M.I.T. Our older son, Stanford, went to Haverford and is now an accountant in San Francisco. The late comer, our son Roger, started at Waterford High School at the same time that his nephew entered Technology. I was sorry to miss the Mexico trip. I did spend three weeks down there last summer. An old stamping ground for me and I still have relatives there. Also cousins near you on Linden Avenue."

Ed neglected to say that he was born in Piedras Negras, Mexico, attended the American High School in Mexico City, and that his wife also lived in Mexico City. Daughter Lisa attended the University of Connecticut. The younger daughter, Alice, attended Goucher College. She is married and has four sons. For many years, Ed has been with the Electric Boat Division of General Dynamics Corporation in Groton, Conn., where he now serves as chief engineer of Technical Services, comprising applied mechanics, sound and vibration, metallurgy and propulsion engineering. His memberships include the Society of Naval Engineers and the American Society of Mechanical Engineers, of which he is a fellow and former chairman of the Oil and Gas Power Division. He is the author of a half dozen technical papers. Chairman of the Waterford Board of Education, he is also active in the Thames Club of New London and spends his leisure time bowling, gardening and running his basement shop. He will add another interest, that of watching a certain young man's progress at the Institute. We'll all be cheering from the sidelines. Mike Sutherland is the 70th member of 1921 families to have entered Technology. Currently, George R. Thomson, '63, son of the late Dr. **George Thomson** of Milton, Mass., is the sole member of the 1921 Second Generation Club at M.I.T. Graduating with the Class of 1960 were Lee J. Alter, nephew of **Henry A. Alter,** and Philip Fauchald, nephew of the late **Alexander M. McMorran.**

Joe Wenick writes: "I am happy to report that my son, Martin Arthur, a 1961 cum laude graduate of Brown University and at present a graduate student at the University of California, Berkeley, has been informed by the State Department that he is one of the 300 young men who have passed all written, oral and security examinations for Foreign Service. The examinations were taken by 9,000. Martin has been instructed to report for work on January 2." . . . General **Bob Neyland,** athletic director at the University of Tennessee and chairman of the N.C.A.A. football rules committee, has been widely quoted in the press for his committee's ruling that Notre Dame officially scored the winning field goal against Syracuse on an illegal play. The Irish won by a 17 to 15 score on a field goal kicked after time had run out. The officials allowed the play following a penalty against Syracuse for roughing the player holding the ball on the first attempt at the field goal, which failed. . . . **Alfred J. Shaughnessy,** Vice-president and General Manager of Hertz System, Inc., has moved his office from Chicago to 660 Madison Avenue, New York City. Shag now lives at 609 Palmer Road, Yonkers, N.Y., and we hope his return to the eastern seaboard will enable him to resume his previous activity in class affairs. . . . **George Schnitzler** writes that he has made good on that retirement decision to spend winters in Florida. He says that until March 30, he can be reached at 1410 Euclid Avenue, Miami Beach 13, after which date he will return to his Brookline, Mass., home. . . . **Douglas Weatherston** gives his new business address as 1724 National Bank of Commerce Building, San Antonio 5, Texas. In accordance with Alumni Association procedure, the names of Dr. **Ronald M. Ferry** and **Robert L. Pine** have been removed from the 1921 Class list.

Open letter to **Joe Kaufman,** '21: Our public apologies, Joe, for the dastardly attempt of gremlinish printer's devils or daydreaming blue pencil pushers to put you in the Class of 1923! You're still a member of 1921 in good standing. Our precise copy for the November Review distinctly reads "Joe Kaufman of 923 Essex Road, Daytona Beach," which was grossly distorted during the capricious publishing process to "1923" and your name ingloriously displayed without the glamour of the bold face which the editors have prescribed for our myopic middle age. Let's try it again, typo, in bold face: **Joe Kaufman,** '21. Or better still, Joe, why not move next door to 921 and make it more likely to come out right. . . . A welcome note from Ednah Blanchard, now retired from Course VI, says: "Sorry I couldn't get to Alumni Day last June. Up to the evening before, I planned to go but came down with chills and fever. **Jimmie** and Lucie **Janes** drove to Hingham to see me the following week. Hadn't seen him since he left the Institute and we had a grand reunion."

John G. Lee, Director of Research, United Aircraft Corporation, East Hartford, Conn., is quoted in a "Wall Street Journal" article entitled "Attractive Magnets: Science, Industry Show Great Interest in New, More Efficient Devices," as saying that in the space field, superconducting magnets could provide "lighter, more compact methods of generating electricity" to power various electrical propulsion systems. United is reported as being one of many companies hard at work on the ion engine, which produces thrust by shooting a stream of positively charged atoms or ions of gas out of a rocket's tail.

The letter from **Helier Rodríguez,** referred to in last month's notes, included a long personal message, expressing their regrets at not being able to visit with members of 1921 on their trip from Florida to Spain, where they have taken up permanent residence at Avenida Generalísimo 83, Madrid 16. It says, in part: "Both legs of the trip were comfortable. We flew in jets and were very fortunate to have tail winds and nice weather on the transatlantic flight, so that its duration was only five hours and forty-five minutes in the air from Idlewild to Madrid. It has taken us much longer than we expected to find a place to live. We were fortunate to find just what we wanted in a new building, just finished and very well located. The climate here has been very pleasant. It has been cool most of the time but, even when warm, it is not uncomfortable on account of the low humidity which prevails except, of course, when it rains, which is infrequent. We had always been here as tourists or visitors in the past, so we had never had the opportunity of getting fully acquainted with the actual ways of living and typical customs which, we now realize, are quite different from ours. It is the difference between the old continent and the new continent; it is the difference between the traditional European standards which change at a very slow rate towards the modern dynamic forms of life, and the ever-changing, readily-im-

proving ways of living of the modern world with ultra-modern functional ideas and practical methods.

"In the language itself we find many expressions and words with meanings that do not coincide with our expressions on the other side of the ocean, to say nothing of basic ideas applied to everyday life. There is indeed a sense of novelty and curiosity in observing and learning the differences in living habits and forms of expression, but it also makes one feel more of a stranger while getting used to the new environment. We have found a few Cuban friends here and see them rather often to comment on our daily experiences and the news that each one receives." We know that all who attended our reunion and Alumni Day last June missed this popular couple, who have been such loyal supporters of 1921 functions. We all send them our best wishes in their new home and hope that we may be privileged to have them with us again before long.

It is with heavy heart that we record the passing of four classmates and extend to their families the sincerest sympathy of the Class of 1921. **Francis Amsden Guffey** died at his home in Oak Hill, W. Va., on March 7, 1961. A native of Clyde, Ohio, he enrolled in Course XIII in our freshman year. For many years he had been associated with the New River and Pocahontas Consolidated Coal Company of Minden, W. Va., as division engineer and superintendent of construction and maintenance. . . . **Carl Johan Adolf Stenholm** of Hempstead, N.Y., died on May 19, 1961. Born in Newport, R.I., on May 25, 1888, he prepared for Technology at Lynn English High School and Lowell Institute and joined us in the junior year. He was graduated in Course II and entered the educational field as a teacher of industrial arts and head of the Technical Department of Hempstead High School, retiring in 1955. He is survived by his wife, Anna D. Stenholm. . . . **Charles Vickery Briggs** of Baker Bridge Road, South Lincoln, Mass., died on November 21, 1961. Born in Fall River, Mass., on June 18, 1885, he attended Durfee High School there and received his A.B. degree from Harvard College, cum laude, in 1907. He joined us in Course X in the sophomore year. At the Institute, he was active in the Masonic Club, the Chemical Society and the Rifle Club. Those of us who attended the 35th Reunion at Pine Orchard, Conn., will recall with pleasure his interesting story of how he came to Technology during World War I to become a chemical engineer and further the war effort by combining technical ability with his fluency in seven languages. Unable to get an accurate slide rule, he joined forces with the Coop and exercised rigid quality control inspection to assure excellent "guessing sticks" for M.I.T. students. He was a research chemist at the Monsanto Chemical Company plant in Everett, Mass., until retirement five years ago at which time he also administered the research library. He was a member of the Harvard Club of Boston, the American Chemical Society and past master of the Mizpah Lodge, A.F. & A.M., Cambridge. He had been a trustee of the Bemis Lecture Foundation in Lincoln. He leaves his wife, the former Susan Lennox Mills of Boston, a son, Charles V., Jr., of Harvard, a daughter, Mrs. H. McClure Johnson of Washington, D.C., and seven grandchildren.

Thomas Francis Murphy, Assistant Commissioner of Patents in the U.S. Patent office from 1946 to 1953, died on December 7, 1961, at his home in Chevy Chase, Md. A native of North Andover, Mass., he joined us in Course VI in the freshman year. During World War I, he was a private in the S.A.T.C. at Technology. He earned his law degree at Georgetown and received a master's degree in mechanical engineering from George Washington University. He had been on the technical staff of the Navy's Bureau of Construction and Repair and joined the Patient Office in 1927. At the time of his death, he was supervisory examiner of patents. He was a member of the District Bar Association and the Patent Office Society. Active in the Knights of Columbus, he was a past president of the St. Vincent de Paul Society and a member of the Loyola Retreat League and the Holy Name Society of Blessed Sacrament Church. He is survived by his wife, Margaret, and two daughters, Mrs. Raymond T. Donohue of Arlington, Va., and Mrs. Adam S. Zbignewich of Hyattsville, Md. We are indebted to Alvin Guttag of Washington, D.C., Secretary of the Class of 1940, for his kindness in notifying us of Tom's passing and his timely aid in sending information for these notes.

Of the many in the class who are aiding the efforts of the S.C.F., **Ollie Bardes,** Cincinnati Area Chairman, is pushing high in the top achievement brackets. The books for our colossal 40th Reunion Gift to M.I.T. have not yet been closed and you still have some time to add a booster shot to your previous generosity. Your secretaries would appreciate the contribution of some news, too!—**Carole A. Clarke,** Secretary, International Electric Corporation, Route 17 and Garden State Parkway, Paramus, N.J.; **Edwin T. Steffian,** Assistant Secretary, Larsen, Steffian, Bradley and Hibbard, 711 Boylston Street, Boston 16, Mass.

'22

Your secretary is leaving for Augusta tomorrow although the weather in Buffalo this December day is ideal for golf. **Parke Appel** writes that a Reunion Planning Committee meeting was held in November at the Ritz-Carlton Hotel attended by Don Carpenter, Bill Mueser, Warren Ferguson, Yard Chittick, Oscar Horovitz, Bill Riley, Fred Dillon and Bob Tonon. Plans were discussed for getting out the reunion announcement as well as activity on the 40th Reunion Fund. Parke states that major gifts have been coming in rather rapidly this year-end with hoped-for designations for the Class of 1922 Chair. . . . One of the most unusual gifts in the annals of higher education is the stamp collection of Captain **Barrett G. Hindes.** This west coast engineer-philatelist has donated several blocks of rare stamps to the Institute. Barrett has a degree in mechanical engineering and is a retired captain in the U.S. Navy Reserve. Stamp collecting has been his lifetime hobby. On several occasions, beginning in 1954, Captain Hindes donated portions of his vast collection to M.I.T. The Nineteenth Century portion includes a pair of Providence 5- and 10-centers issued in 1846; a pair of 1879 90-cent stamps valued at $500; and a block of four 2-cent stamps of 1883 special printing.

Fred C. Koch is now president of the Rock Island Oil and Refining Company, chairman of the board of the Koch Engineering Company, and president of the Koch Oil Corporation, all of Wichita, Kansas. His book, "A Business Man Looks at Communism," has had seven editions in the past twelve months. Fred has traveled extensively and bases his observations on personal experiences in 1929, 1930 and 1931 in the Soviet Union, as well as a trip in 1956 which also included Iraq, shortly before the revolution. . . . Mr. and Mrs. **Raymond E. Miskelly** of Plymouth have announced the engagement of their son Robert to Brenda Loring of Kingston. Miss Loring was graduated from the Katherine Gibbs School. . . . **John H. Teeter,** Executive Director of the Damon Runyan Memorial Fund for Cancer Research, has provided figures indicating that the Fund has provided M.I.T. with $50,000 for cancer research equipment. This makes a grand total of their investment at M.I.T. of $355,528. . . . **A. F. Robertson** has written from Boston of his continued interest in M.I.T.

Our sympathies are extended to the families of **Hugh Elliott** in California, **Thomas F. Sheeran, Robert L. Albert** of Arlington, Va., and **M. Alfred Ulbrich** of Boston. . . . Among new addresses received are those of **Laurence B. Davis,** Stoneleigh, Bronxville; **William T. Dunlap, Jr.,** Hickory, N.C.; Major **Roland L. Smith,** New York. . . . Yours in haste—**Whitworth Ferguson,** Secretary, 333 Ellicott Street, Buffalo, N.Y.; **C. George Dandrow,** Assistant Secretary, Johns-Manville Corporation, 22 East 40th Street, New York, N.Y.

'23

Howard F. Russell, genial vice-president of our class, and until recently general manager of Improved Risk Mutuals, White Plains, N.Y., was honored at a banquet attended by 150 guests, including I.R.M. engineers, underwriters, and their wives. Mr. Russell, who retired on December 1, 1961, in accordance with the retirement plan of the organization, was presented with a gift from the employees and a scroll commemorating his 18 years as general manager. . . . I hope that all of you read Dean **John E. Burchard**'s article in the December 2, 1961 issue of the Saturday Evening Post entitled "Must Our Cities Be So Ugly." It is a very interesting article and food for thought. . . . While convalescing from an operation I was watching the televi-

sion reports on November 29 concerning the "Space Shot of Enos" and was very pleasantly surprised to see and hear **Rod Goetchius** being interviewed. Rod was in charge of building the tracking stations around the world. Nice going, Rod.

It is with deep regret that we report the passing of several members of our class and our sympathies go out to their relatives and friends. **Franklin K. Haven,** one of the stalwarts of our class, died of a heart attack on November 16, 1961. Franklin was very active in class affairs and he will be missed by those of us who have known him these many years. Our sympathies go, too, to the families of Colonel **Burnett Olmsted,** Apt. 4016, 4201 Massachusetts Ave., N.W., Washington 16, D.C.; **Sutra Palasiri,** 32/34 Prasnanmitr Lane, Bangkapi, Bangkok, Thailand; **Ejnar I. Wolf,** P.O. Box 382, Waterbury 20, Conn., and **Matthew H. Connors,** 426 Ridge Road, Wethersfield, Conn.

We wish to announce the following address changes: **Frederick E. Bastian,** 1935 Ridge Road, Lewiston, N.Y.; Dr. **Robert L. Hershey,** Box H, Kennett Square, Pa.; **William L. Searles,** Box 3, Huntington Beach, Calif.; Captain **Horatio C. Sexton,** C. A. Brooks, 19 Lovejoy Road, Andover, Mass.; **Gilbert Whitehead,** P.O. Box 422, Prescott, Ariz.; and Colonel **H. H. Zornig,** 741 San Bruno Avenue, Coral Gables 43, Fla.—**Herbert L. Hayden,** c/o of E. I. du Pont de Nemours and Company, Leominster, Mass.; **Albert S. Redway,** Assistant Secretary, 47 Deepwood Drive, Hamden 17, Conn.

'24

This is the month when news is always sparse. These notes are written before the hoped-for flood of Christmas greetings with their also hoped-for tidbits of information. It's not clear that the paucity of news clippings at this time of year indicates a general seasonal lack of activity, but it always seems to happen this way. . . . The Alumni Council, as most of you know, is the governing body of the Association. It meets monthly during the school year at M.I.T., and periodically it is suggested that certain class representatives invite a few guests from their classes. In November it was our turn, and **Ray Lehrer** did the honors. **Lefty Walker,** the insurance tycoon, was there, as was **Paul Blampied.** Paul keeps Johns-Manville's Boston office going. **Wil Gilman,** a Raytheon engineer when he can spare time from mountain climbing, joined in the festivities, as did **William Campbell Ross.** It's the first time, to your secretary's knowledge, that Cam Ross has joined us at any function. He was with us only during the freshman year, but distinguished himself by pulling mightily on the long rope on Field Day. Lefty captained that team, by the way, and in case you've forgotten, we didn't pull mightily enough. Cam has been with Dewey & Almy (now W. R. Grace) for years, and is research manager. If you need any oversize balloons, he's your man. . . . By the way, the Alumni Fund report at the meeting was given by none other than **George Knight,** newest member of the Alumni Fund Board. This, of course, adds him to the long list of your secretary's bosses.

In a roundabout way we learn that **Julian Joffe** has deserted the big city and moved up to Rainbow Lake in New York. The maps available at the moment do not show such a place, but it sounds like the Adirondacks and we judge Julian is not actually retiring but retreating to a peaceful spot conducive to writing. . . . The **Clinton B. Conways** have also pulled up stakes, but they took off in a different direction. If you're going to Florida, you'll find them at 1318 Keene Road in Clearwater. . . . And while we're in the moving business, **Don Kennedy** has left Washington after all these years for Denver. Have no idea why, but it's probably a Bureau of Mines assignment.

The November luncheon meeting in New York had a comfortable turnout with Messrs. Cooley, Gruehr, Lassiter, Scott, Schooler, Stevens, Shea and Tanck in attendance. The usually reliable New York Vice-president, **Paul Cardinal,** was noticeable by his absence. He was budgeting. . . . As is to be expected, the **Henningers**, Marianne and **John,** broke open the Florida vacation season with a pre-Christmas stay in Key West under the "hot sun and ever-swaying palms." They were home for the holidays, but undoubtedly will hurry back. The **McCallums**, too, went off for a fall jaunt, a brief vacation trip to Bermuda. . . . The **Griffin Crafts'** have been their usual active selves. It would probably be in order to refer to Griff as Governor Crafts from now on. Last fall he was elected to the Board of Governors of the Bull Dog Club of America, Section 1. Or maybe he would prefer to be called Judge. He acted in that capacity at the Suffolk County Kennel Club Show in September. Betty spent a good part of the summer behind the footlights in some well-known productions.

Course I men especially will remember **Paul Hedenstad.** So far as is known he had been with the Department of Public Works of his home town, Worcester, through the years. On October 12 he died. . . . In early December **H. H. Abdul Razzack** died in New York. An electrical engineer, he had a varied career both in this country and in India. Recently he had served as a United Nations economic and industrial adviser in Jordan, and later was chief of industries of the Planning Commission of the Indian Government. . . . And so ends our February column: shortest month, shortest column. Watch out for the next one, though, if those Christmas cards live up to expectation.—**Henry B. Kane,** Secretary, Room 1-272, M.I.T., Cambridge 39, Mass.

'25

News this month is scarce and almost exclusively confined to the serious side. During the past month, word of the passing of three classmates has reached us.

Henry R. Bodell, Course X, passed away on November 5, 1961, at his home in Charlotte, N.C. Henry was born in Plymouth, Mass., and since 1954 has been located in Charlotte where he was director of planning and procuring in the Purchasing Department of the Celanese Corporation. He is survived by his wife and two married daughters. . . . On the same day, November 5, 1961, **Fred W. Waterman, Jr.,** passed away in Higganum, Conn. Fred was President of D. & H. Scovil, Inc.; and no further details have been received to date. . . . We are late in reporting the death of **E. Bradford Nichols** who passed away in Poulsbo, Wash., last May 12, 1961. We have no details beyond the fact that he was business and music educator at the high school in Brooklyn, Wash.

Just as we are going to press, word reaches me that **Irving M. Symonds** has just been transferred from the New York-New Jersey area to Monterey, Mexico. Sy has, of course, spent a good many years in Mexico; and although his transfer is not unexpected, he had only one month to clear up matters and be on his way, with instructions that he could take only clothing with him this time, which meant he had to sell his furniture and before crossing the border at Brownsville, Texas, he had to dispose of his car. He knows his way around Mexico, however, so I expect he will make out without too many difficulties. I hope to have more information regarding his new responsibilities in the near future.—**F. L. Foster,** Secretary, Room 5-105, M.I.T., Cambridge 39, Mass.

'26

John Long, '33, was kidding me the other evening about writing class notes while traveling somewhere in a jet plane. (Did you get that? Class of '33! Welcome John!) Well this issue probably would have been written aboard a Viscount to Philadelphia but for the fact that my nose began to run three hours before plane time and that usually spells trouble (remember a couple of years ago the Volkswagen flipped when I was driving home in it with a bad head cold). Well I didn't take the Viscount, so several days later finds me in our Winchester living room at 3 A.M. with a cup of black coffee, a fire in the fireplace and my Parker 51. Yes, the aftermath of the cold has made it more comfortable to write Class News at this crazy hour than to sleep. It's a nice quiet time to write, but I'll have to admit that what few notes I had for this month are in Pigeon Cove, and that the clipping services brought in nary an item, so be prepared for anything or nothing. The little needle I usually put at the end of the notes brought a response from one classmate this month; believe it or not it jarred old **"Dan" McGrew** into writing the following: "Dear George, Too busy down here to write letters, but the attached clipping will serve to catch you up on what I am doing. November Class News asked for news. Sincerely, 'Dan' McGrew." The

clipping is from the "Fort Bragg Paraglide" and includes a photo of "Dan" and his deputy. The caption beneath the photo: "301st Commanders—Major General Edward J. McGrew, Jr., Commander of the 301st Logistical Command and his deputy commander, Brigadier General Robert C. Wilson, Jr., review the Log Command's tables of organization after arrival at Fort Bragg to begin active duty with STRAC. The 301st is a Reserve unit called to duty by President Kennedy to boost the Army's manpower strength. The men of the Log Command are from the New York City area."

At the last Alumni Council meeting **Jim Killian** told us how the Second Century Fund is being put to work on the great expansion program at the Institute just as fast as it becomes available. Those of you from afar will not know the place when you come to Cambridge a year or two hence. Jim also told us of his work on a committee to establish a European counterpart to M.I.T., a program that is progressing nicely and which was further formulated at a recent meeting in Switzerland. Jim's report on the general development of scientific education in Europe was extremely optimistic. . . . It seems that I have one of Heidi's capers to report every month. This one involves some red stains we recently noticed in the back of Ruth's car. They were puzzling until we recalled that a friend had given us a box of fresh raspberries which she placed on the floor of the rear compartment. A few hours later Heidi got in the back of the car to drive to Pigeon Cove and if you don't think a St. Bernard can mess up the back seat of a Cadillac by stomping in a box of raspberries and then jumping around, you should have seen this. Ruth cleaned it up eventually but I'll never know how. . . . We haven't heard recently from **Gordon Spear** in Detroit—how about it Gordon, you always have the low-down on the Class of '26 out that way! . . . And **Ed Bromilow,** retired in Newtown, Conn., made all kinds of offers to help a bedraggled class secretary at reunion last June; we're waiting, Ed! And how about you, **Austin,** and you **Bird Kelly!** And **Bill Sessions** and **Johnnie Wills?** I'm just calling a few but I'm thinking of a lot of others. You guys will have to content yourselves with reading about St. Bernards and mashed up raspberries if you don't come through. I might even get started telling you about the progress of my project of making reproductions of New England hand carved eagles from rigid polyurethane. Well, it's time to go to the office and after reading over the above I'll agree that I can be more inspiring writing aboard a jet or overlooking the sea at Pigeon Cove. Just wait until next month! **—George Warren Smith,** Secretary, c/o E. I du Pont de Nemours and Company, 140 Federal Street, Boston, Mass.

'27

In a recent industry publication, we came across the name of **Harold W. Fisher,** of Standard Oil Company (New Jersey). He was mentioned as a principal participant in negotiations between the Iraqi government and a team representing Iraq Petroleum, which took place in Baghdad in October. . . . Plans for preparation for our 35th Reunion continue to materialize. For the benefit of those who didn't see last month's notes, this reunion will be held June 8-10 at Oyster Harbors Club, Osterville, Mass., and we expect to have a real turnout. Mark these days on your calendar, and you will soon be asked to confirm that you will be there. . . . **Bill Taggart** has had a card from **Erik Hofman** who, with his wife Tibby, is traveling around the Pacific. The card was sent from Hong Kong where he had seen **Wally Kwauk.** . . . The following new addresses have been received: **Anthony C. DeNapoli, Jr.,** 25 Bittersweet Drive, Egypt, Mass.; **Marcel DuBois,** 7 Chemin Monplaisir, Chene-Bougeries, Geneva, Switzerland; **James D. Flagg,** Route 7, Florence, Ala.; and Professor **Kenneth A. Smith,** Columbia University, Avery Hall, New York, N.Y. **—J. S. Harris,** Secretary, Shell Oil Company, 50 West 50th Street, New York 20, N.Y.

'28

We are always grateful to **Jim Donovan** and his traveling habits. His frequent chance meetings with classmates provide some of our best news. During the recent Chemical Show at the Coliseum in New York City, Jim saw **Al Gracia** who was in town on business, accompanied by his wife, Josephine. Both of the Gracias' daughters are now married and Jim believes he is correct in recalling that Al is now a grandpa. **Owen Rideout** also was at the show and happened along while Jim was visiting a competitor's booth. Our latest information is that Owen is still with Hercules Powder Company at Wilmington, Del., where he has made his career.

We are very sorry to report the death of **John P. Luby.** Although the date was February 10, 1961, the news only now has come to our attention. Jack wrote a very interesting report on his life for the 25-year class report. His greatest pride was his big family of four girls and two boys. His professional work was in the aircraft manufacturing industry. At last report he was with Chance Vought Aircraft, Inc., Dallas, Texas.—**Walter J. Smith,** Assistant Secretary, 15 Acorn Park, Cambridge, Mass.; **George I. Chatfield,** Secretary, 11 Winfield Avenue, Harrison, N. Y.

'30

From Concord, N.H., **Bob A. Foster** writes that his Foster Builders, Inc. has passed the 25-year milestone. Bob's company operates in both the residential and commercial fields, and has an agency franchise for National Homes Corporation. He is a past president of the Association of General Contractors of New Hampshire and Vermont and chairman of the Concord Building Code Board of Appeals. He reports that in recent years he has seen **Jack Vennard,** who is teaching at Stanford, and **Hal Spaans,** who is with the telephone company in Harrisburg. (Apparently the latter item is out of date, since the secretary of the Harrisburg M.I.T. Club noted in the December Review that Hal was in the process of moving to Philadelphia.) . . . **Harold (Joe) Fine** is also an entrepreneur—H. D. Fine and Associates, Inc., consulting engineers with offices in Boston. He is president of the Boston Stein Club and lives in Newton Lower Falls. His older son, Stephen, is a member of the Class of '63 at M.I.T. Younger son, Jeffrey, is in high school. . . . **Earl Ferguson** is assistant vice-president of the New York Telephone Company, in charge of the Appraisals Department of the Operating staff. His daughter, Priscilla, graduated from Middlebury College in 1959 and is employed as secretary for the program director of the United States Committee for UNICEF. This involves helping "to sell the greeting cards in the U. S. which support the work of the United Nations Children's Fund." Earl says he has heard that **Jarvis (Bub) Wilson** "has a new job, general plant manager, for the Rochester (N.Y.) Telephone Corporation." . . . **Charles Gale,** who lives in Oak Park, Ill., is supervisor of Sales Engineering Schools and Technical Publications for American Oil Company in Chicago. . . . **Dick Foster** is controlling the quality of food products for Campbell Soup Company in Camden, N.J. His son, Donald, is married and a first-year medical student at University of Texas. Daughter Susan is a sophomore at the University of Rochester School of Nursing. . . . Changes of address: **Arnold S. Ackiss,** 133 Colburn Street, Westwood, Mass.; **Warren Martell,** 26 Bennett Avenue, Long Beach, Calif.; Captain **Joseph E. Rehler,** Quarters O, U. S. Naval Shipyard, Portsmouth, N. H.—**Gordon K. Lister,** Secretary, 530 Fifth Avenue, New York 36, N.Y.; **Ralph W. Peters,** Assistant Secretary, 249 Hollywood Avenue, Rochester, N. Y.; **Louise Hall,** Assistant Secretary, Box 6636, College Station, Durham, N. C.

'32

A new Denver firm has been licensed under the Small Business Investment Act to provide financial assistance to businesses in the electronic, aeronautical, chemical and engineering fields—the new company is Applied Science Capital Corporation to be headed by **Frank R. Cook,** founder of the Frank R. Cook Company, Colorado's first aviation-electronic firm. The Cook Company was a leading supplier of flight electrical power for U.S. guided missiles. The company is now operated as the Power Sources Division of Telecomputing Corporation of California. Applied Science Capital Corporation was founded to provide financing for small scientifically-oriented businesses; especially those in the Rocky Mountain area. . . .

Charles B. McCoy, General Manager of the DuPont Company's Explosives Department, was made a vice-president, director, and member of the Executive Committee of the company. He is also a director of the Wilmington Trust Company, and was for a number of years on the board of the Children's Bureau of Delaware.

Save the dates June 8-11, 1962. Save the time and plan to be with us for our 30th Reunion at Chatham Bars Inn. Your Reunion Committee is hard at work and since this is basically the same committee which has been responsible for all of our reunions, particularly our fabulous 25th, you can count on having an enjoyable weekend. Those who have attended recent reunions will understand that these are no idle words of publicity. We hope that those who have never attended a reunion will decide that now is the time to renew class and M.I.T. associations. Golf is readily available. Swimming (we are counting on the water being warm enough) and boating are at our door. Cape Cod's many points of interest are within a few minutes drive. More detailed publicity is now in process of preparation and will be mailed to the entire class. Meanwhile, save the dates, and plan to be with us.—**G. Edward Nealand,** Secretary, Room 3-137, M.I.T.; **Elwood W. Schafer,** Assistant Secretary, Room 10-318, M.I.T., Cambridge, Mass.

'33

Bill Huston was on campus in early December looking for bright young men to join him at NASA where he is assistant director, Fatigue Laboratory, Structural Research Division of the Langley Research Center. Bill accounts with justifiable pride for six young Hustons, four boys and two girls; the oldest of the tribe is 8! . . . Having returned from a relaxing round-the-world trip, **Dick Morse** is up to his neck temporarily trying to staff the top echelons of the Defense Department research operations. Dick has great zeal, and his present efforts are largely a labor of love. . . . With regret we report two deaths: **Daniel M. Davis,** XVI, who lived in Los Angeles when he died in September a year ago; and **Stanley Sapery,** also XVI, on November 23. Stan had been president of Augusta Plastics in New York City.

A most pleasant Christmas greeting in three dimensions arrived in the form of **Niazi I. Mostafa,** all the way from Cairo. Looking hale and hearty, Musty was in the United States on a Christmas visit to his three children. Nadia, the eldest, is in New York, Tommy is a junior here at M.I.T., and the youngest is at a college in Canada. . . . Three significant moves—let's have the details, boys—**Leamon F. Donahue,** II, from Ridgewood, N.J., to Silver Spring, Md.; **Russ Eddy,** VI, from Syracuse to Huntingdon Valley, Pa.; and **Clare Farr,** XVI, from Waltham to Reed's Ferry, N.H. . . . **Cal Mohr** writes a newsy letter reporting on visits to several M.I.T. and professional meetings in Chicago, without seeing any classmates. What say, brethren, get out and be loyal to your alma mater!—**R. M. Kimball,** Secretary, Room 3-234, M.I.T., Cambridge 39, Mass.

'34

Particularly this month it is a good thing the Class of '34 has more than one secretary. At least the listing of several secretaries will give some semblance of appearance that we are paying attention. . . . Dr. **Warren L. Towle,** who is one of our members with a high class hobby, sends along the following, showing that orchid people have trouble too: "There's nothing like taking a sound engineering approach to one's hobby, I always say. Take raising orchids, for instance. After 10 years of careful attention to watering, ventilation, temperature control, feeding and potting techniques, the plants really thrive. But there's one problem—I now need a greenhouse stretcher!" . . . The next time any of you are going through St. Louis, I wish you would call me, Secretary **Harold E. Thayer,** at Central 1-8980, and drop a few gems for the next issue.—Co-Secretaries: **H. E. Thayer,** 415 W. Jackson Road, Webster Groves 19, Mo.; **G. K. Crosby,** Longwood Road, Huntington, W. Va.; **J. P. Eder,** 1 Lockwood Road, Riverside, Conn.; **Malcolm S. Stevens,** P. O. Box 93, West Barrington, R.I.

'35

Here is the letter we have all been looking forward to from **Walter Stockmayer** at Dartmouth College: "Maybe I haven't got such a lot of news anyhow. As you may recall, I moved up here in late March, Sylvia came in April when we sold our house, and the boys stayed in Weston, each with a different family, until June. At that time Ralph graduated from Weston High, and he is working for a year before continuing his education. Hugh is now a junior here at Hanover High School, where he seems to be very happy. During the summer we didn't stray very far from here, thanks to the housebuilding. Sylvia played a lot of tennis. I didn't do much of that or of hiking either for a while; on July 1 I made a terrific gash in my left ankle with a sharp axe. It was my own fault, of course, and I was simply being as careless as a moderately good axeman sometimes feels he could be but never should. Luckily I sliced no tendons or big blood vessels, and so it only laid me up for about ten days and I was back on the trail in a month.

"Possibly the most M.I.T.-worthy item was my trip out West in September. The jet flight between Chicago and Portland was definitely the high point, with a magnificent view of Mount Rainier from way up. Later I got a similar glimpse of Shasta on the way down to Frisco. After a stop in Eugene, Ore., where my former student Marshall Fixman (Ph.D. Course V, '53) is now director of the Institute of Theoretical Science of the University of Oregon, I went to Berkeley for the main business of taking part in a symposium to celebrate the 80th birthday of Joel Hildebrand, one of our great chemists. While at this meeting I encountered **Leo Epstein,** who has been with General Electric since about 1946 and is now at their atomic power lab in Vallecitos. He lives in Irvington with wife, Selma, and son Alvin, the latter now a high school freshman. Other Tech men encountered during the meeting were Jim Warburton, '37, Dick Lyle, '52, and Al Hoffman, '53, all at Cal Research; also Don Rea (Ph.D., '54) working on satellite instrumentation problems at Berkeley.

"So far Dartmouth is what I hoped for. It doesn't pretend to be, and of course never could be similar to M.I.T. We have a much wider range of student types and interests, and I find it a very pleasant atmosphere. The "Two Cultures" problem (some people claim there are at least three and maybe more) is a very important one to solve, and will persist even if we solve all of our present short-term difficulties. I am teaching freshmen this fall, then will switch abruptly to advanced physical chem for the winter term which begins just after the New Year. Of course I miss Tech at times! I still keep busy on research—mainly on theory of big molecules. . . . Our house is nearing completion and we hope to be in it (on the Vermont side of the river, in Norwich) before snow flies. . . . We have other Tech men in the faculty: Francis W. Sears, '20, (physics), who taught some of us in '31-'35; Richard Stoiber, '37, (geology); Peter Von Hippel, '52, and Allan Munck (medical). Also, Art Forer, '57, is a graduate student in Cytology."

Many thanks for your interesting letter, Stocky, and we all wish you continued success. Do not fail to get in touch with us when you are next in the Boston area as we have long-delayed important business to transact. . . . The following arrived just in time for these notes from our Prexy, **Leo Beckwith:** "You asked me to write you about our travels last summer, but I've got a more exciting topic on my mind—namely, the Class of '35. For a group that started its illustrious career with a debt to the Institute of $3,500 for removing lobster stains from the ceiling of the University Club after our Senior Banquet, we've sure come to life in recent years. Our reunions have always been a lot of fun but this last one, with the tremendous amount of planning and care that Stocky and his gang put into it, was just delightful, especially having our youngsters with us for the first time. And the Reunion Year Book that **Ham Dow** and his group put together—I don't think there was ever anything like it! To top it off, the Class Gift of $150,000 that **Jack Colby** generously let me have the glory of announcing at Class Day 1960, was the Institute's largest 25-year gift ever.

"I think the grand achievement of the reunion was in finding a secretary like you, Allan, who could organize and stimulate a team of regional secretaries throughout the country to feed us this steady, wonderful stream of stories and news about our classmates. The Technology Review had to establish a new maxi-

mum of three columns per class or '35 might have taken over the whole rear section. . . . Since the reunion, we've been keeping active with a Steering Committee that meets from time to time, handling the different programs and business of the class, organizing regional get-togethers, laying plans for the next reunion, etc., etc. Typical of these activities was the unusual and succesful Class Golf Tournament that **Allan Mowatt** and **Art Marquardt** conceived, organized and ran this past season. I might also mention a call I got last summer from **Bill Abramowitz,** who had done such a great job on our Class Gift back two years ago. Bill was thrilled (as we all were), on hearing of the magnificent gift of $300,000 that **Rufus Applegarth** had made to the Second Century Fund and thought that with this as an inspiration, others in the class would want to get together to see if our class couldn't do a real job for the Institute. Bill has been working on this ever since, and with the help of a committee consisting of John Taplin, Max Wasserman, Lou Packard, Allan Mowatt, Irv Banquer, Leo Beckwith, Hal Bemis, Pete Grant, Charlie Bowen, and others, we've got the figure up to $430,000 and still going strong. According to the rules of the Alumni Fund, everything pledged to the Second Century Fund is going to the credit of our 25-Year Class Gift. (The same applies to several other classes whose 25th also overlap the Second Century drive.) I'm advised that we are now way ahead of any other 25-year class and have only one 40-year class to overhaul. Rufe didn't attach any strings to his gift but Bill's committee feels that we shouldn't let him get away with it without at least matching it, and they are convinced that we can do it. Excuse all the boasting about our Class of '35, but God bless them, you have to give credit where it is due."

The two dozen self-addressed post cards sent out drew a number of replies as follows: from **Mort Jenkins** at Pittsburgh, a promise of news from classmates in his area when and if they will take the time for a reply; and from **Hal Bemis,** a copy of his letter to **Herb Thomas,** newly moved to Wayne, Pa., with a pencilled note of Christmas Greetings along with the hope that the winter hibernation from golf doesn't destroy his magic touch on the course. **Art Haskins** put all the following on a post card: "Busy this summer losing sailboat races. Managed to take a second place in small open class in Casco Bay Interclub Races in my Bullseye, 'Dolphin.' Been up to my ears estimating for bids on new work for B.I.W. this fall. Son, Dan, now teaching mechanical engineering and testing materials at Franklin Institute, Boston, after getting master's at M.I.T. last spring. Daughter, Carol, is a senior at Gorham, Maine, State Teacher's College. I'm sending out some letters for more news now."

Many thanks to this triumvirate who always seem to find time to come through with something when the well begins to run dry, and a public admonition to the rest of you to dust off the old ballpoint. . . . Our class vice-president, **Bernie Nelson,** has had an address change from New York City to c/o New York Telephone Company, White Plains, N. Y. Other address changes include: **Joseph K. Raes** from Milton, Mass., to Apt. 20, 5216 Cortein Place, North Hollywood, Calif.; **John M. Flaitz,** 2801 First City National Bank Building, Houston 2, Texas; and **William D. Kiebler** from Enid, Okla., to 5774 Berkshire Lane, Dallas 9, Texas. Behind such moves there is usually news of interest, so how about dropping a note and telling us about it?

Hal Everett reports on some more classmates in the Long Island area. **Fred J. Bensin** and wife, Emma, live in Huntington, N.Y., with three sons—Robert, 17, and twins, Carl and Paul, 15. Fred is vice-president of C. W. Lauman and Company, Inc. . . . **John W. Eriksen** is a sales engineer with the Austin Company. He lives at 23 Lilac Drive, Syosset, with his wife, Clara, and three children—John, 21, Peter, 18, and Bonnie, 14. . . . **Samuel Paul**'s son, David, graduated from M.I.T. with the Class of 1960. Sam lives at 265 Hewlett Park Road, Woodmere, with his wife, Gladys, and a daughter, aged 20. He and his buddy, **Ed Loewenstein** from Greensboro, N.C., are in frequent contact. They are each senior partners in their own architectural firms. . . . **Kenneth Brown** lives at 104 Tullamore Road, Garden City, with his wife Kathlyn, son Gregory, 7, and daughter Patricia, 3. Ken is a department head at Iselin-Jefferson Company, Inc., and was a gold mine of information on other classmates whom he wrote about as follows: **"Johnny Best,** Betty and brood live near Baltimore, and we write notes on Christmas cards. **Bill Brockett** lives outside of Wilmington, and he and Eunice have six beautiful children. **George Bull** and his family are in Germany and Mary Elizabeth writes a wonderful Christmas letter. Chuck Austin, '36, and Carol have moved to California. Bill Matthews, '34, was a lieutenant colonel in the Air Force the last time he phoned."

Another interesting letter was sent in by **Don Gittens,** who is vice-president and general manager of American Bosch Arma Corporation. He makes his home in Port Washington with his wife, Josephine, and two children—David, 12, and Barbara, 18. He writes as follows: "**Gary Garaventa** lives at 109 Lakewood Circle, Manchester, Conn., and is factory manager of Hamilton Standard Division of United Aircraft. Our two families spent a summer vacation together last year. We spent a weekend with **Lew** and Lee **Simon** (Course XVI) in Los Angeles recently. Lew is working for the government at Point Magu on Navy missile programs. Lew tells me he occasionally sees **Leo Epstein,** who is in atomic energy for General Electric and is living in Irvington, Calif. I hear from **Al Fletcher** once in a while. Al is superintendent of machine shop for Bethlehem Steel Company in Quincy, Mass. **Lou "Bud" Pflanz** keeps in touch through a 'rare' letter to tell me of his Army activities as a lieutenant colonel in the Signal Corps at Sandia Base, Albuquerque, N.M. Lou and his three children seem to be thriving on a military life and gad about the world a great deal. I personally have been busy trying to meet the needs of the Defense Department. We have many programs at Arma for supplying research and engineering to all the services. Our best known program is the Arma Inertial Guidance System for the Atlas missile. This has been extremely successful and has led to our equipment being directed on to the Minuteman missile. Working on such high priority projects is stimulating, but the pressures of the requirements keep me hopping. I take my relaxation on Long Island Sound by getting away with my family on frequent cruises. We are looking forward to getting to Nantucket this year for two or three weeks afloat."

Although we have a small army (34 in all) of district and regional secretaries, the majority of whom are regular news contributors, these notes can be made even more interesting by news and comments from you who read but never write. Why not take a few minutes, right now, before you forget until next month, and jot a few lines on a card or note paper. Tell us what your work is, where you live, and something about your family. Mail it to me or your nearest regional secretary, now. —**Allan Q. Mowatt,** Secretary, 11 Castle Road, Lexington 73, Mass. Regional Secretaries: **Edward C. Edgar,** Kerry Lane, Chappaqua, N.Y.; **Hal L. Bemis,** 510 Avonwood Road, Haverford, Pa.; **Elmer D. Szantay,** 6130 North Kilbourn Avenue, Chicago 16, Ill.; and **Gerald C. Rich,** 673 Rosita Avenue, Los Altos, Calif.

'36

This month the news is varied in kind. Changes of address which seem to indicate changes in responsibilities are as follows: Colonel **John A. Meeks** to The Citadel in Charleston, S.C.; **Mark A. Princi** from Schenectady to Marblehead, Mass.; **Norman T. Robey** to the American Oil Company, Wood River, Ill.; Colonel **Roman I. Ulans** to Fort Monmouth, N.J., from Pipersville, Pa.

A note from **Hal Miller** tells of spending a day with **Tommy Kato** who has been made an official member of our class. His address: **Thomas T. Kato,** Tokyo International Commerce Company, Inc., 19 Rector Street, New York 6. . . . **George Trimble,** manager of Advanced Programs for the Martin Company, served on the committee for the American Rocket Society's Space Flight Report to the Nation in October. . . . At the same time **Ariel Thomas,** senior associate with Metcalf and Eddy in Boston, was delivering a paper before the 34th annual Water Pollution Control Federation meeting in Milwaukee. The subject: "Chlorination Operation and Maintenance Problems." The Annual Report of Arthur D. Little, Inc., entitled "1886-1960, 74 Years of Research for Industry," describes work conducted by two members of our class. **Richard S. Robinson,** a vice-president of A.D.L., supervised a technical study of the manufacturing, marketing and long-range corporate planning for the Spaulding Fibre Company, Inc. **Bernard Vonnegut** has been working with Little's cloud physics group on a study of atmospheric electricity. The work has

been supported by the U. S. Navy and the National Science Foundation.—**Alice H. Kimball,** Secretary, 20 Everett Avenue, Winchester, Mass.

'37

Our 25th Reunion is only a few months away and your committee is hard at work. As you know, we plan to have a 25th Reunion Class Report with biographical data on each and every member of our class along with a recent photo. (A sharp, clear Polaroid snapshot will do the job, if you don't have a recent picture of yourself.) If you haven't filled out the biographical data questionnaire, today is a good time; send it along with your photograph, to your secretary. The closing date for publication of the 25th Reunion Class Report is very near, and we want to include your data. Everyone who returns his information will receive a free copy of this report.

Norm Matthews has been appointed group leader, ferrous metallurgy, of the Research Laboratory of the International Nickel Company, Inc., at Bayonne, N.J. Prior to his association with International Nickel, Norm was with the Metallurgical Products Department of the General Electric Company, Detroit, Mich., as manager, diamond application engineering. Previous service was at the American Brake Shoe Company Research Center, Mahwah, N.J., from March, 1952, to July, 1956 as assistant chief metallurgist and at the Electro Alloys Division of the American Brake Shoe Company at Elyria, Ohio, from March, 1946, through March, 1952. He was on the staff of the United States Army's Watertown Arsenal Laboratory, Watertown, Mass., from September, 1940, to March, 1946. . . . **Horace Van Dorn** has been appointed vice-president of engineering of the Fafnix Bearing Company. He is also a member of the Board of Directors of the G. E. Prentice Manufacturing Company and is a corporator of the Berlin Savings Bank, Berlin, Conn. . . . **Rutherford Harris** is district manager for the Mutual Boiler Insurance Company and covers the seven-state area around Cleveland, Ohio. He has a daughter, Sally, who is a freshman at Bryn Mawr.—**Robert H. Thorson,** Secretary, 506 Riverside Avenue, Medford, Mass.; Professor **S. Curtis Powell,** Assistant Secretary, Room 5-323, M.I.T., Cambridge, Mass.; **Jerome Salny,** Assistant Secretary, Egbert Hill, Morristown, N.J.

'39

First, comes an apology to **Morris E. Nicholson,** XIX. In mid-summer, Morrie wrote a fine two-page letter full of his activities as head of the Department of Metallurgy at the University of Minnesota. But the letter disappeared! All I can safely report from memory is that Morrie is extremely busy with all sorts of departmental and extracurricular activities in the metallurgical field, and that he and Norma are mighty proud of Morris, Jr., 17, Bob, 13, and Richard 8. . . . One other note from the North country—**Collin H. Alexander,** X, lives in St. Paul, where he serves as assistant technical director for Minnesota Mining and Manufacturing. . . . **Donald W. Waterman,** II, who is currently serving as president of the Fairfield County M.I.T. Club, left Singer Manufacturing Company after many years of service there (ever since graduation) to become a director and officer of the Connecticut National Bank. Don lives in Easton, Conn. . . . **Harlow J. Reed,** XIV, is vice-president-engineering, of Olin Mathieson Chemical Corporation. He is headquartered at the corporate offices at 460 Park Avenue, New York 22, N.Y. . . . Dr. **Maurice A. Meyer,** VI, now is vice-president of the Adcole Corporation, a Cambridge (Mass.) space age engineering firm. Prior to that assignment, Maurice had been with the Laboratory for Electronics, Inc., of Boston, for 13 years, holding the position of director of advanced development and chief engineer at the time he transferred to Adcole.

Burton D. Rudnick, XVII, whom many friends doubtless remember in connection with the family hotels Kenmore and Braemore in Boston, now owns the Harley Realty Corporation, 10 Kenmore Street, Boston. Burt's father built the two hotels, among others, and after graduation (followed by a year at Yale studying maintenance engineering), Burt joined the family enterprise in the management of the hotels. In 1957, the hotels were sold to the Hotel Corporation of America, and Burt started his own business as an industrial realtor. He also is connected with other enterprises, such as the Charlestown Candy Bar Company, in Everett, and Teddy brand peanut butter, also in Everett. . . . **Wesley A. Kuhrt,** XIV, who received a write-up here in the May, 1960 Notes, made the newspapers last fall with an announcement by United Aircraft Corporation that he was to be one of two scientists attending an international conferenc in Europe on nuclear energy. Dr. Kuhrt's paper was on an engine under development by U.A.C. The September conference, in Austria, studied the problems of harnessing atomic energy through controlled fusion, for peaceful and beneficial purposes.

Colonel **Severin R. Beyma,** II-G, a West Pointer who received his master's degree in '39, is associate professor and head of the mathematics section of the department of natural sciences of Hampton Institute, in Hampton, Va. Colonel Beyma served in uniform for 20 years, coming to Hampton in 1953. He is a member of the American Ordnance Association and the Mathematical Association of America. At the college commencement in June, he was one of two recipients of an award for distinguished teaching.—**Oswald Stewart,** Secretary, 31 Birch Road, Darien, Conn.

'40

To make a column it takes one letter, a post card and correspondence.

A post card alone will do if letters are few (with profuse apologies to Emily Dickinson).—**Alvin Guttag,** Secretary, Cushman, Darby and Cushman, American Security Building, Washington 5, D.C.; **Samuel A. Goldblith,** Assistant Secretary, Department of Food Technology, M.I.T., Cambridge, Mass.

'42

We remind you that our 20th Reunion is scheduled for Friday, June 8, 1962, through Sunday, June 10; we hope you will also plan to attend Alumni Day at the Institute on Monday, June 11. . . . A statistical tabulation from Alumni Fund records shows that there are 716 people on the active Class of '42 roster. The readers of this magazine, and, we hope, this column, total 245 or a typical 34 per cent of the class. The total class gift last year was $7,231, which averages out to $29.50 per person. The most obvious way to raise the total above the $8,100 of the Classes of '43 and '41 is to suggest to one and all a minimum annual gift of $25. There are, of course, a growing number of substantial gifts (over $100) from corporate officers and managers of closely held enterprises. We hope that all class members in the industrial and business world will be in that category soon. In the meantime, no harm is done in passing the word to other classmates. Perhaps they will join us and some day bring our participation up to the 47 per cent level of the Class of '17.

We have a few address changes this month: **John G. Muller** from Ossining, N.Y., to Dhahran, Saudi Arabia. We assume he is in the oil business. **David F. Greenberg** has crossed the country from Boston to Palo Alto, Calif. **Richard J. Roth** has moved half-way west from Hartford to Northfield, Ill. Assistant Secretary **Robert W. Keating** has headed east to Fairfax, Va. The four Rosenblums are returning to New England and should be at the address below by the time you read this, weather permitting. —**Louis Rosenblum,** 24 Cedar Road, Belmont 78, Mass.; Assistant Secretaries: **J. J. Quinn,** Hawthorne, Calif.; **Ed Edmunds,** Albuquerque, N.M.; **Robert W. Keating,** Fairfax, Va.

2-'44

After my last month's plea for more news, it seems to have poured in at quite a rate. Also, I made a trip to California, and managed to call up a number of the fellows in Los Angeles and San Francisco which has added to the volume of news. . . . A note received from **Bill Boschen,** XV, who was vice-president and general manager of Avien, Inc., on Long Island, indicates that he has just purchased the Ralph B. Carter Company of Hackensack, N.J. The Carter Company specializes in pumps and depollution equipment. I also ran into a note in "Electronic News," indicating that **Bud West,** XV, sales manager of one of General Electric's divisions in Syracuse, N.Y., has been

elected to a fourth term as a national director of the Air Forces Association.

On a recent trip to New York, I ran into **Clyde Snyder,** XV, who had been with First National City Bank. He has just joined United Corp., a closed end investment trust, in their analysis section. Clyde is quite single, and lives on Manhattan, since he finds that it is quite convenient to get to all the various activities that are at hand on the island. He reports that **King Cayce,** II, is also in New York, and is an investment counselor with offices in the I.T.T. building on Park Avenue. We received a card announcing the ordination of **Roland Benjamin,** Jr., XV, as a priest in Trenton, N.J., at a service by the Right Reverend A. L. Banyard, Bishop of New Jersey, on December 21. . . . I recently received a note from **Bob Reilly** which announces that he has been promoted to treasurer of Atlas Chemical Industries, Inc. of Wilmington, Del. After taking his master's degree at University of Pennsylvania, he joined Atlas in 1953. . . . While on my trip to California, I talked to **Bob Copsey,** XV, who is an operations research scientist with Systems Development Corporation in Santa Monica, Calif. He is quite active in the Los Angeles M.I.T. Club, serving on its board of governors. He is working on large man-machine interdisciplinary programs, and gets back to Cambridge to consult with people at the Institute. In typical local style, his home has a swimming pool that he and his two children enjoy very much. He reports that he sees **Gary Loomis,** XV, at Alumni meetings occasionally. Gary is doing underwriting work with Dempsey-Tegeler and Company of Los Angeles. Also, Bob sees **Alvin Markus,** XV, who is in his own business in the mechanical field. Bob Copsey didn't give me any more details so maybe Al can fill me in when he reads the notes.

I called **Bill West,** VIII, who is technical director at Autonetics Division of North American Aviation in Downey. He went on to take a Ph.D. at Cal Tech. His family includes three boys and two girls and a couple of years ago the whole family went out to Hawaii for a vacation. Last year they went to Mexico and Acapulco for their vacation. He reports that **Craig Williams,** XV, is director of the proposal program at Autonetics and Craig and his wife Jane also live in Downey. Craig is presently quite close to the Minuteman program for Autonetics. While on the subject of missiles, Bill reports that he often sees Major **Edward H. Peterson,** XVI, of the Air Force Ballistic Missiles Division, in Los Angeles. Ed is tied up presently with the Titan program. . . . While in San Franciso, I called up **Carl Roden,** XV, and find that he is in the insurance business with one of the largest auto insurance firms in the country. He went on to take an M.B.A. at Stanford, and presently runs the Oakland, Berkeley, Orinda district office. The Roden family and the two children were up in Alaska for a couple of weeks last summer and enjoyed it immensely. They recommend it to all who are interested in something entirely different. . . . In looking over the notes it appears that I have an undue number of men's names who were in Course XV. I hope that next month I'll have a high percentage of names from some of the other courses.—**P. M. Heilman,** Secretary, Reflectone Electronics, W. Main Street, Stamford, Conn.

'46

I will apologize in advance for what will be a less than average column this month. I am holed up in a motel room in Minneapolis living out six weeks of unhappy bachelorhood. As I mentioned last month I have transferred from the Boston Division to the Aeronautical Division of Minneapolis Honeywell Regulator Company, and my family won't be moving out for a few more weeks. I am in the ground support equipment design engineering department and initially am responsible for the design of the check-out equipment for the Dyna-Soar fire control system electronics. A rather ironical thing happened shortly after I left home. My wife, Janet, received a call from **Dave Moyer.** He said he was in town looking for a place to live. For the past 12 or more years he has been living in Dayton, Ohio, and I have been trying to convince him that he should move to Massachusetts. All of a sudden he takes my advice, just a little too late for us to enjoy his decision. As soon as he gets settled I shall report his new job and address. . . . **Ed Richardson** made a move a year and a-half ago that I don't believe was reported. He now lives at 1331 Old Worcester Road, Framingham Center, Mass. He is facilities engineer, responsible for all plant buildings, utilities, services, production line layout and installations, etc., for the William Underwood Company, Watertown, Mass. Ed is still active in the Naval Reserve, and also recently served as regional vice-chairman for the SCF.

Bud Brylawski received his M.B.A. at the Harvard Business School, and his L.L.B. at Yale Law School. He married Laura Carizzoni, Milan, Italy's finest export (all who attended the reunion will agree with that), and there are now two children. Bud is a partner in the law firm of Fulton-Brylawski, and lives at 4829 Potomac Avenue, N.W., Washington, D.C. . . . **Max Daggett** started his own manufacturer's representative business in 1959, and handles specialty materials, metallic and non-metallic, and fluid control instrumentation. He lives at 6417 Waggoner Drive, Dallas 30, Texas. . . . **Donald E. Robinson** is design project engineer, in charge of analytical design at Pratt and Whitney's Connecticut Aircraft Nuclear Engine Lab. He received his M.S. in Engineering Science (Mechanics) from Rensselaer Polytechnic Institute in 1959. The Robinsons have five children, four boys and a girl, and Don is active in Cub Scouts and Little League. They live at 34 Virginia Road, Manchester, Conn. . . . **Bob Fried** reports that he is keeping fairly busy. In addition to being president of Modern Manufacturing Corporation, Wayne Manufacturing Company, and Devel, Inc., and also vice-president of Riverama, Inc., he spends 50 per cent of his time working with management of American Can Company on long-range planning. Apparently he gets home occasionally (Aberdeen Farms, Staatsburg, N.Y.) because he also reports he has four children. I am afraid this will have to do until my files catch up with me. Please drop me a line at my new address.—**John A. Maynard,** Secretary, 25 Pheasant Lane, North Oaks, St. Paul 10, Minn.

'49

A Christmas card from **Geri** and **John Kunstadter** reminds me that they are still in residence in London, England, from which vantage point John manages some of the far-flung international activities of Formfit. . . . From the opposite direction, **Ron Greene** (S.B. Course XV) reports that he, his wife Ginny, and their daughter Susan are now in residence at 801 Bermuda Drive, San Mateo, Calif. The move was occasioned by Ron's new job as marketing manager for Mechrolab in Mountain View, Calif., a manufacturer of instruments for medical, university, and industrial laboratories.

We have two short biographical sketches this month. The first of these is by **Lawrence Holt,** at the instigation of **Wally Row.** At M.I.T. Larry was a member of Sigma Alpha Epsilon fraternity. After graduation (S.B., Course II) he enrolled in a one-year training program with the Trane Company of LaCrosse, Wis. During the first six months of this program, Larry was in Wisconsin learning the details of construction and application of the products manufactured by that firm. He spent the second six months in the Boston sales office to prepare further for field selling. Larry is now the New England district engineer of the Niagara Blower Company, with an office in Melrose, Mass. He covers the New England states, actively soliciting business for this company's products. The line includes chemical dehumidification equipment sold under the name of Niagara "Hygrol" System. Larry engineered and sold Lincoln Laboratory the prototype of this system which was later used at all the SAGE sites around the country. This system is used to dry raw outdoor air to a 26 degree dew point before being supplied to IBM computers. Larry has engineered and sold many other industrial applications of the same products for drying glue, vitamin pills, matches, chemical powders, etc. The Niagara Blower Company also manufactures the Niagara "No-Frost" system. This is the only system available today which can produce subfreezing temperature air continuously without shutting down for defrosting. Larry has pioneered the application of this system to the food industry in New England. Many large cold storage warehouses now use this system to great advantage to continuously blast-freeze their products on an endless belt.

Married in 1950 to the former Jane Knight, a graduate of the New England Conservatory of Music, they now reside

at 75 Stratford Road in Melrose, Mass., with their three children—Marcia, 10; Scott Willard, 8; and Rebekah, 3.

The second biographical sketch deals with Dr. **Felix Haas** who, we announced last month, will become the director of the Division of Mathematical Sciences of Purdue University on February 1, 1962.

Dr. Haas was born in Vienna, Austria, in 1921 and entered the United States in 1939; he served as a staff sergeant in the Field Artillery 1943-46. His undergraduate and graduate work was done at M.I.T., where he received the B.S. degree in physics in 1948, followed by the M.S. degree in 1949 and the Ph.D. degree in 1952, both in mathematics. He was an instructor at Lehigh University for one year, followed by a two-year tenure as Fine Instructor, an endowed instructorship, at Princeton University and one year as assistant professor of mathematics at the University of Connecticut. . . . Dr. Haas joined the Wayne State University staff in 1956 as an assistant professor of mathematics, becoming an associate professor the following year and full professor in 1960. Professor Givens credits him with being largely responsible for reorganizing junior-senior courses so as to provide a solid foundation for both mathematics majors and students in engineering and applied mathematics. Since becoming chairman, he has attracted six noteworthy new professors to the strong mathematics staff of Wayne State University.

Since 1952 Dr. Haas has made a substantial number of contributions to the theory of differential equations, beginning with his doctoral thesis on non-linear mechanics, which was followed by two widely recognized papers under the title, "On the Global Behavior of Differential Equations on Two-Dimensional Manifold," one published in the proceedings of the American Mathematical Society and the other in the Proceedings of the National Academy of Sciences. He has been recognized by staff and students at Wayne State University as a highly popular and thoroughly demanding classroom teacher both at the undergraduate and graduate levels. Dr. Haas has been closely associated with engineering throughout his career, both in educational and consulting work. He cites this as one of the reasons why he has been strongly attracted to Purdue University. "There is a natural need for a strong Division of Mathematical Sciences here to match the standing of the engineering schools. We have many good mathematicians here," says Dr. Haas, "and I believe that Purdue University is destined to have one of the great mathematics departments."

Dr. Haas was married in 1948 to the former **Violet Bushwick,** a brilliant young mathematician with special interest also in the field of differential equations, who was in graduate school with Dr. Haas at M.I.T., where she received her Ph.D. in 1951 at the age of 25. She is an associate professor of mathematics at the University of Detroit. They, with their three children aged 5 to 10 years, will make their home in Lafayette, Ind., after February 1. Despite full-time professional positions and an absorbing interest in their three young children, both Dr. Violet and Dr. Felix Haas find time for the pursuit of hobbies, she in painting and music, and he in duplicate bridge, at which he is an expert player.—**Frank T. Hulswit,** Secretary, 14 Nadine Road, Saxonville, Mass.

'52

Here it is midwinter, and we hope thoughts are turning to the 10th Reunion on the Cape and warm sunny beaches, etc. . . . Cleaning out the mailbag we find a card from **Granger Sutton, Jr.,** who is in Ann Arbor and has started residency in neurology at the University of Michigan. . . . **Albert E. Sevcik** writes that he has opened a new firm, Continental Marketing Services in Denver, providing interviewing and sampling services in Denver and the Southwest to market research firms, advertising agencies, and manufacturers. Al used to be with Benton and Bowles in New York City. . . . A very interesting letter from **Arun Prasad** in Bangalore, India, catches us up to date. After leaving school, he went to Baden, Switzerland, as an engineer with Brown, Boveri and Company in gas turbine research, and brushed up on his German and saw Europe. Then in June, 1959, he returned to India and joined the government Ministry of Defence R & D organization as a senior technical officer in aero engines and is now working on the design and development of jet engines. Arun mentions that construction of prototypes was difficult based on available material and tools, but that the pioneering efforts seem very encouraging, especially as the country has had little experience to date in the field of gas turbines.

Edwin Kessler represented Travelers Research Center, Inc. in Hartford at the Ninth Weather Radar Conference in Kansas City, Mo., last October with a paper "The Kinematic Basis of Generators and Stalactites." . . . Dr. **Charles W. Welby** has been appointed an assistant professor of geology at Rensselaer Polytechnic Institute. . . . And in the Arthur D. Little, Inc., Annual Report, **Charles M. Apt** is mentioned for projects, not once but twice. Once in connection with lubrication studies for AC Spark Plug Gyroscope bearings, and once for working with Baird Atomic, Inc., on problems associated with designing a satellite telescope to have a long useful operating life. . . . **Robert J. Murphy** is now foundry superintendent for the LFM Manufacturing subsidiary of Rockwell Manufacturing with responsibilities for the melting and sand control operations of the foundry. And the Boston Rugby Club's roster includes **Joe Walsh,** who attracted attention last year by playing rugby with a beard. Joe has his B.S., M.S., and Sc.D., and has been working for Woods Hole Oceanographic Institution. . . . **Zenas Crocker** was elected executive vice-president of Nixon-Baldwin Chemicals, Inc. in Nixon, N.J. (thermoplastics). . . . And to close with, a short note from **Nick Haritatos** announces his marriage to Nancy Jane Pierce in Berkeley, Calif., where they both work at the California Research Corporation. Nancy is a librarian, and Nick works in Process and Plant Design. Nick mentions that **Dick Lyle** is on a rotating assignment as staff assistant to the general manager of the Richmond Lab of California Research, and that **Bob Bacastow** is running experiments on the cyclotron at California as he studies for his Ph.D. in physics. And with that we close for this month.—**Dana M. Ferguson,** Secretary, 242 Great Road, Acton, Mass.

'53

The class will be delighted to know that work is under way for planning our 10th Reunion. Our initial task is to form a Reunion Committee (all those interested please contact Paul or myself), and then to select a site for the festivities. And so forth. We will keep you in touch. . . . News is slim indeed. Would appreciate some correspondence from you people. . . . **Jeff (Everett R.) Davis** stopped by for his annual visit (while interviewing prospective Dewey and Almy employees); he reports "no news." . . . Have seen a few classmates wandering around from place to place, including: **Paul Shepherd,** still with Cabot, Cabot, and Forbes; **George Hegeman,** with Arthur D. Little, Inc.; **Tom Faulhaber,** with Ganteaume and McMullen; **Gil Gardner,** with U. S. Air Force; **John Jeris,** working on doctorate here at M.I.T.; **Nelson Lees** in Public Relations and **Alan Lazarus** in Physics, both at M.I.T. . . . Received a note from **J. Freeman Gilbert** bringing us up to date on his affairs (so to speak). He added in his letter, "I am writing you informally to tell what has happened to me, and hope that more will do the same."

Freeman has followed an interesting career in geophysics, and apparently has been extremely successful. After completing his doctorate here at M.I.T., he had a year of postdoctoral study at the University of Cambridge, a one-year interlude as research associate here at Tech, then joined the Institute of Geophysics, U.C.L.A. Shortly before "retiring" from U.C.L.A. (as an associate professor), Freeman married Sally Bonney (who has her master's degree from Stanford); they have one child and are expecting another. His U.C.L.A. tour was followed by a year as senior research geophysicist with Geophysical Services, Inc. (Texas Institute). Also, he was honored by being elected a fellow of the American Academy of Arts and Sciences. Congratulations! And, finally, this October Freeman returned to the "ivory tower" and was appointed a (full) professor at the Institute of Geophysics, University of California at San Diego. Please keep in touch. —**Martin Wohl,** Secretary, Room 1-131, M.I.T., Cambridge, Mass.

'54

After missing the deadline last month, I felt it would be rather gauche to miss this issue too. So I made a special effort to get these notes together on time, and

just barely made it. Hence the gasping for breath which you might detect accompanying the following news. . . . **Mel Mattson** has been promoted to captain in the Army. Mel is with an ordnance outfit somewhere in Europe. . . . **Ada Jacobson** has acquired two new titles recently; she is now Dr. **Ada J. Hyne.** The dates of her marriage and her doctorate are unknown at the moment; what is known is that she is at the University of Alberta, up north of the border. . . . **Joe Goncz** is still with Uncle Sam's Army, at the Seneca Ordnance Depot in Romulus, N.Y. . . . **Bernie Gittelman** has gotten his doctorate, and is now employed at the W. W. Hansen Lab at Stanford University. . . . **John Avery** is enjoying a year's appointment as a lecturer at the Tate Institute of Mathematical Physics, University of Edinburgh, Scotland. . . . **Joe Bova** was last seen working for the Hawaiian Equipment Company, Ltd., in Maui, Hawaii. . . . **Dave Richardson** was recently cited by the Arthur D. Little Company, for whom he toils, for his work on generating heat in the range of 3,000 degrees to 6,000 degrees F. The high-temperature burner Dave and his colleagues have been working on "is adaptable to a wide variety of industrial uses," it is claimed.

A letter written by **Steve Laurens** last October has finally reached us. Steve says that he married Judith Johnston of Pawtucket, R.I., in August, 1960, and the two of them are now living in Acton, Mass. Steve is working on the Sparrow III missile system at Raytheon in Bedford, Mass. . . . We also received a letter from **Art Jacob,** who is closing out his first year as a practicing patent attorney in Highland Park, N.J. Art says that he has been able to hold his own since opening his office, and has even been able to accept only cases involving "patent, trademark, copyright, and related matters," although the term "related" sometimes has its meaning stretched a little. Art also reports that he saw **George Schwenk** and **Larry** and Margie **Leonard** last fall, and they all seem to be doing well. And that about uses up all of our news this month. Drop me a note describing your latest escapades, and then you will get to see your name in print, too.—**Edwin G. Eigel, Jr.,** Secretary, 6932 Chippewa Street, St. Louis 9, Mo.

'55

The mail pouch has been pretty empty this month, and consequently news is a bit on the slim side. Your female reporter has a change of address which you might notice below. **Dell** claims that hospitality will be limited to the orange crate variety for several months, "but those who are tough are welcome." (Tough where?) . . . A pretty pink card arrived from **Pete** and Jane **Toohy** announcing the birth of Katherine Ann on November 21. She is their second daughter, adding to the population of Rye, N. Y. . . . **Gil** and Barbara **Davidson** added Amy Ruth to their list of tax exemptions in November. Gil is a project scientist at American Science and Engineering in Cambridge and is involved in research programs using the Discoverer satellites. . . . **Bob** and Carol **Posner** have departed from Cambridge for Baltimore, Md. Bob is now with Wexler Construction Company and is in charge of some fabulous projects in the Baltimore-Washington area. Carol is continuing her schooling for a master's degree in city planning. . . . We wish to thank **Dave Rados** for helping out in the column last month, since we were really caught in a squeeze for time. —Co-Secretaries: Mrs. **J. H. Venarde,** 2401 Brae Road, Arden, Wilmington 3, Del.; **L. Dennis Shapiro,** 15 Linnaean Street, Cambridge 38, Mass.

'56

Class President **Bob Malster** announces this month that **Richard A. Kane** and **Garry L. Quinn** have been appointed the new class agents. Rich is a professor of physics at Texas A & M, College Station, Texas; Garry can be reached at 9605 Main Street, Damascus, Md. They replace **Julio Arroyo,** to whom we extend our thanks for his service as class agent for the last five years.

Caroline Disario is now Mrs. Russell A. Chihoski. . . . **Ronald Clark** received his M.B.A. from the Harvard Business School in June and is now employed as an analyst for the Chemical Fund in New York. . . . Lieutenant **John Frishett** is stationed at Holloman A.F.B., N.M. . . . **Gideon Gartner** and Janet Sussman of Brooklyn were married last February. They traveled to Israel and Rome in the spring and so could not be with us at the reunion. Gideon is with the Computer Division of Philco (now owned by Ford) in Willow Grove, Pa. . . . **Peter Hall** was wed in 1956. He now has a son and a daughter. Pete is working for Raytheon and living in Sudbury, Mass. . . . **Dave Hanson** is working for the Sandia Corporation in Albuquerque. The Hansons have a two-year-old daughter. . . . **Richard** and Rita **Heimer** were wed in 1958 and have one daughter. Dick is with Budd-Lewyt Electronics, Inc., on Long Island. . . . **Joe Murgio** reports that he is working for North American Aviation in Bedford, Mass. . . . **Ken Randolph** has recently moved to Fairfax, Va., to work for Atlantic Research. . . . **Bernhard Romberg,** now a Ph.D., is doing operations research for A.D. Little in Chicago. . . . **Alexander Rose** is assistant construction superintendent for Rudin Management Corporation in New York. . . . **Jack Rosenfeld** is doing research work for IBM in Westchester County. . . . **Harold Rothstein** is with the American Appraisal Company of Milwaukee, Wis. He writes that his work necessitates a lot of traveling, and he lives most of the time in hotels. . . . **Fred Thellmann** is a vice-president of Worth Development Corporation in Jacksonville, Fla. . . . **Victor Vaughen** received his master's degree from the Institute in 1960. In 1961 he served in the Army Chemical Corps and at the Oak Ridge National Laboratories. . . . **Clark Weissman** is with the Systems Development Corporation in Santa Monica, Calif. The Weissmans have one daughter. . . . The reunion questionnaire with all of its information is now a year old, so I hope you will continue to keep the class up to date on your activities with an annual note to the secretary or some other class officer.—**Bruce B. Bredehoft,** Secretary, 1094 Center Street, Newton Center 49, Mass.

'57

The usual authors of this column are vacationing this issue to allow a bit of heralding for your coming 5th Reunion by your favorite (and only) Chief Reunion-Runner, **Gary Dischel..** Let me say first that returns from our first mailing indicate a whopping turnout, with every living group (and 5:15 Club) already assured of representation. A list of all who have definitely made their plans to come will be forthcoming in one of our future mailings. As for the reunion itself, it will be held June 9-10 as previously announced, at the Mayflower Hotel in Plymouth, Mass., which is within one and-a-half driving hours of Boston and about five hours from New York. The Mayflower is a very cheerful, roomy hotel overlooking the ocean and has a multitude of cozy lounges, verandas, and porches well suited for get-to-gethers with old class and roommates. Its recreational facilities are excellent; they include a spacious private pool, tennis courts, shuffleboard, a private lake for boating, a small golf course of five holes, a private ocean beach, and a host of other things. To take full advantage of the seaside location, the M.I.T. Sailing Club will make available to us several dinghies. I am also pleased to report that because the Class of '42 is planning its 20th Reunion at the Mayflower that weekend along with us, the hotel management has agreed to close the hotel to outsiders. This will assure us, along with '42, of exclusive use of all facilities without interference or raised eyebrows from people in a non-reunion spirit and frame of mind!

Our tentative plans are to have some activities going on all the time, but not to be over-organized, to make sure there is plenty of time for informal socializing. Check-in and registration will be around Saturday noon followed by an afternoon of relaxed renewal of old friendships, name-remembering, and an opportunity to plan company mergers, along with a schedule of athletic activities for the more hale and hearty. A vigorous cocktail party in the very late afternoon will be followed by a banquet providing both delicious nourishment and a little—very little—oratory by our esteemed class officers. Word has reached me via our Hawaiian grapevine that at this event, if our attendances surpasses all previous records, which even at this early date seems a near certainty, "Admiral" **Harry Flagg,** to commemorate this achievement, will take "the pledge" before the eyes of his classmates. A dance, under the stars, will then continue into the wee hours. A dip in the pool or ocean, for those ambitious enough on Sunday morning, will be followed by breakfast to be served on a

schedule flexible enough to suit all. Some hours of socializing and sailing, golfing, volleyball, etc., will precede a scrumptious clambake, to be held on the beach in mid-afternoon. These activities will continue until our participants are exhausted in numbers, energy, and eloquency.

I have received several inquiries about the possibility for those who desire to tie the reunion in with their vacation or at least enjoy a long relaxed weekend, to check in at the Mayflower a day or so early and then extend their stay afterwards. I've checked this out with the Mayflower people, who were most receptive, and so I encourage anyone so interested to plan on doing so. This may prove particularly appealing for classmates planning to attend Alumni Day at Tech on Monday the 11th, who can stay over at the Mayflower Sunday night and not have to bother about checking in and out of another hotel in Boston. Other inquiries I've received recently from some of our many still eligible bachelors have to do with a hesitation to attend because they have no particular females they care to bring along. Let me state quite definitely that this is going to be a class, not family reunion. While I hope there will be a bevy of beautiful wives and girl friends in attendance, the activities are planned so that there will be more than enough to make the stag reunioner feel it was well worth his coming.

The nucleus of a hard-working committee has been formed and is in action, but there is still plenty to do and I'll be happy to hear from anyone interested. Publicity and promotion is being steered by **Ron Keefe** and **Ed Roberts.** Ron is now with the Patent Department of Polaroid, and is ambitiously spending his evenings at Boston College working for his law degree, while his patient spouse Pat keeps watch on their two lively boys. Ed is working for his Ph.D. at the School of Industrial Management and was recently promoted to assistant professor of industrial management. He lives in Sharon, Mass., with his wife Nancy, who teaches school. Scheduling the overall program of reunion activities is the very "continental" **Marty Gerson,** who recently returned from Europe where he obtained an M.S. from the London School of Economics. Marty is now doing consulting work in O.R. with the Harvey Shycon Company. Handling the purse strings and budgets for our committee is **Butch Dickerson,** officially '58. Butch is on the verge of momentous doings as one of the founders of Scientific Development Corporation, which is in the educational computer business. He lives in Cambridge along with Clara May and his two young men. As more plans are made, you will be hearing from us in this column and through our mailings. I'll always be available and happy to receive questions and suggestions from all quarters.—**Gary J. Dischel,** 5th Reunion Chairman, Hotel Corporation of America, 464 Commonwealth Avenue, Boston 15, Mass.; **Alan M. May,** Secretary, 201 East 66th Street, New York, N.Y.; **Martin R. Forsberg,** Assistant Secretary, 11 Scottsfield Road, Allston 34, Mass.

'61

There is still very little word from you-all. Watch this space for news of a possible Boston area get-together this spring though, and count on a lot of notes and news in the April or May issue of The Review.—**Joseph Harrington, 3rd,** Secretary, M.I.T. Graduate House, Room 212-A, 305 Memorial Drive, Cambridge 39, Mass.

Class Reunions Being Arranged This Year

Here's a list of classes holding reunions next June, the chairmen, and some of the dates and places.

1902: Reunion Chairman, Claude E. Patch, 26 Lincoln St., Stoneham, Mass.

1907: Reunion Chairman, Philip B. Walker, 18 Summit St., Whitinsville, Mass.

1912: Reunion Chairman, James A. Cook, 8 Trinity Rd., Marblehead, Mass.; Snow Inn, Harwichport, Mass., June 8-11.

1917: Reunion Chairman, Stanley C. Dunning, Apt. 22, 1572 Massachusetts Ave., Cambridge 38; Snow Inn, Harwichport, Mass., June 8-10.

1922: Reunion Chairman, Parke D. Appel, Old Farm Rd., P.O. Box 137, Dover, Mass.; New Ocean House, Swampscott, Mass., June 7-10.

1927: Reunion Chairman, Glenn D. Jackson, Jr., Mack Hill Road, P.O. Box 83, Amherst, N.H.; Oyster Harbors Club, Osterville, Mass., June 8-10.

1932: Reunion Chairman, Thomas E. Sears, Jr., 31 St. James Ave., Boston 16, Mass.; Chatham Bars Inn, Chatham, Mass., June 8-11.

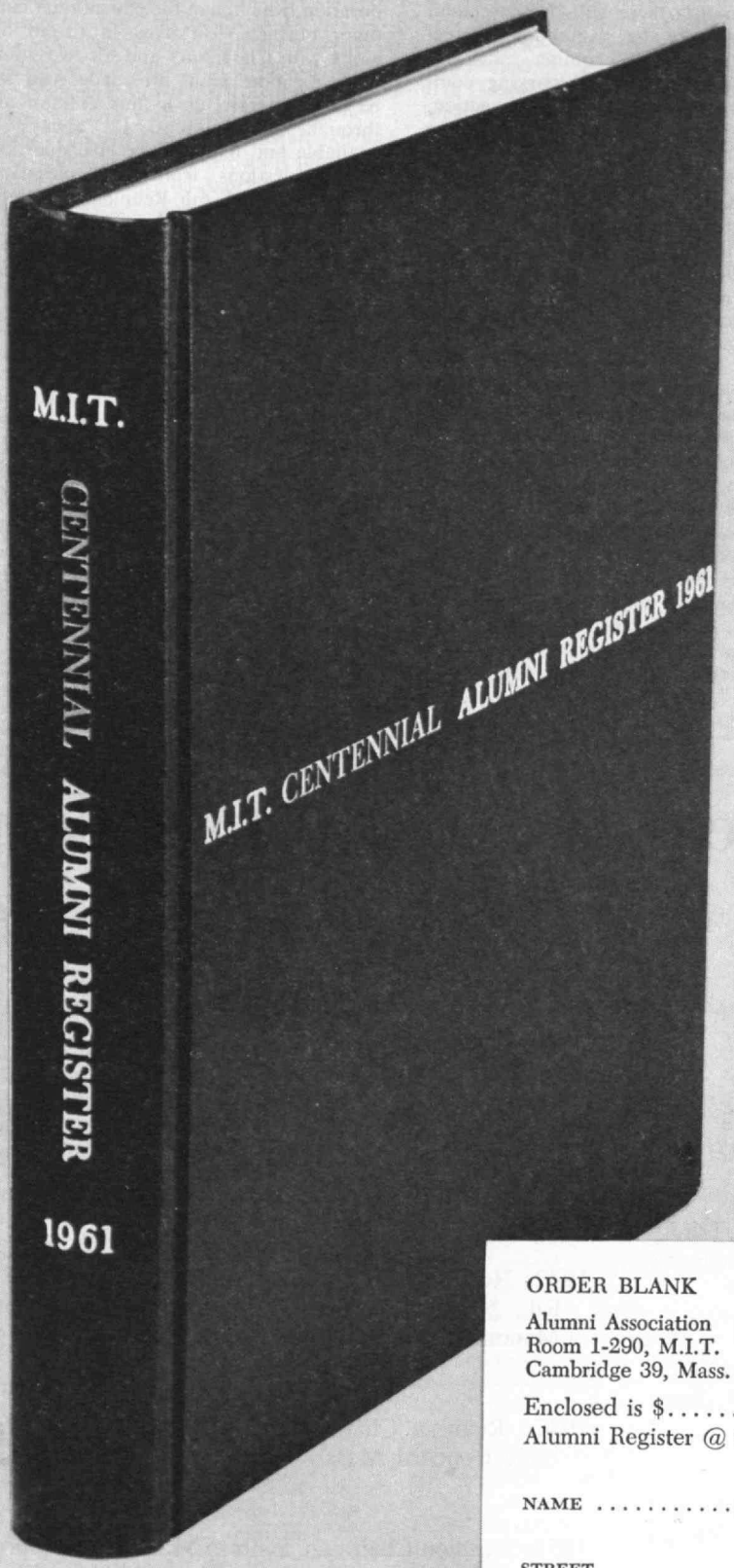
1937: Reunion Chairman, Philip H. Peters, 18 Cushing Rd., Wellesley Hills 81, Mass.; Everett Moore Baker House, June 9-11.

1942: Reunion Chairman, Alfred Goldis, 188 Arnold Rd., Newton Centre 59, Mass.; Mayflower Hotel, Manomet Point, Plymouth, Mass., June 8-10.

1947: Reunion Chairman, Parker Symmes, 18 Park Lane, Concord, Mass.

1952: Reunion Chairman, Sanford M. Isaacs, 50 Spruce Hill Rd., Weston 93, Mass.; The Yachtsman Hotel, Hyannis, Mass., June 9-10.

1957: Reunion Chairman, Gary Dischel, 1105 Lexington St., Bldg. 9, Apt. 1-4, Waltham 54, Mass.; Mayflower Hotel, Manomet Point, Plymouth, Mass., June 9-10.



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(from Aalto, Alvar H. H., Architecture, 1940–41, and 1946–51, to Zymelman, Manuel, '56, Center for International Studies, 1958–59).

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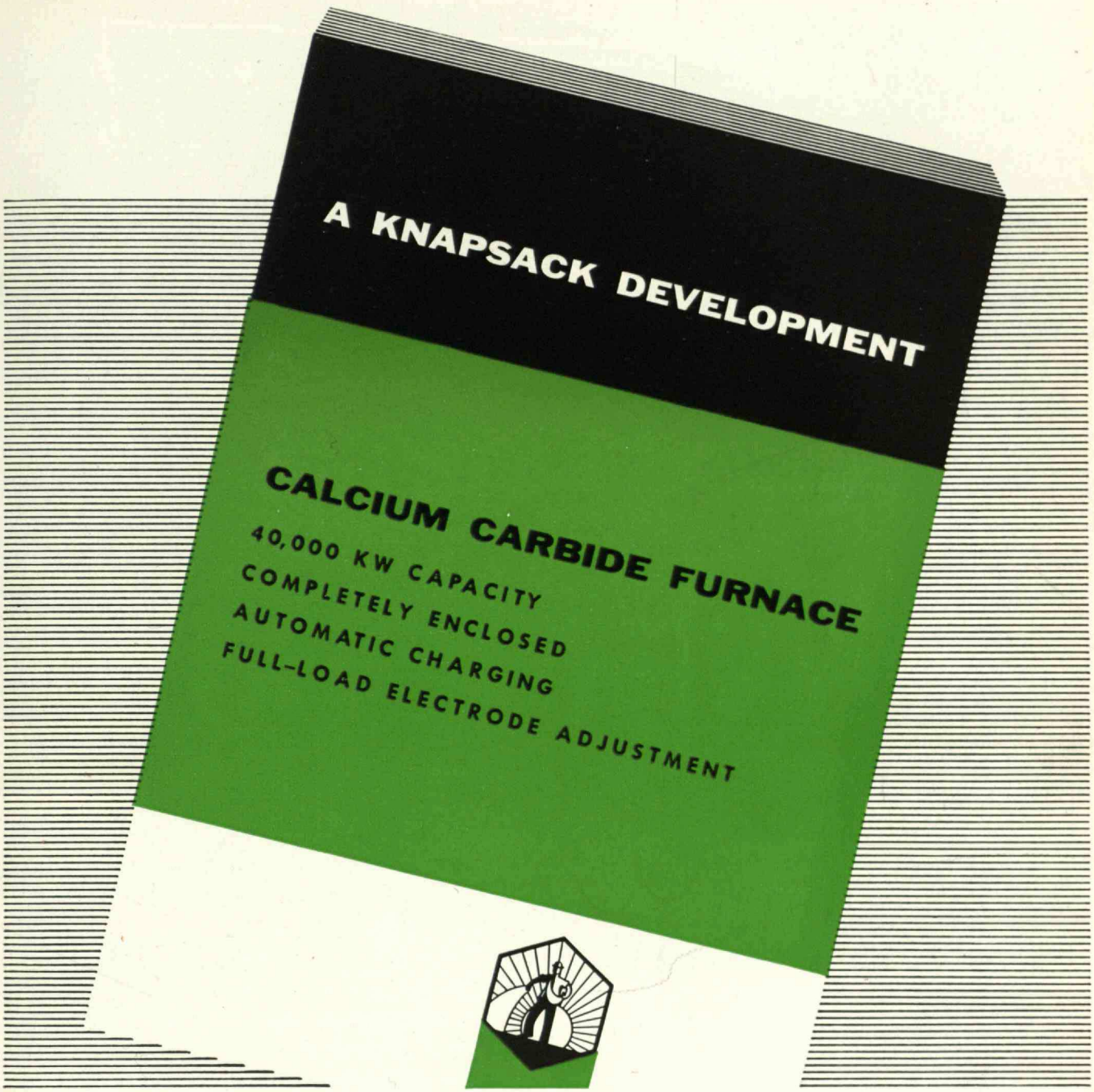
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